IQLR

ISSN 1078-5787

International QL Report

Volume 5 Issue 3
September/October
1995

No Need To Go To This Extreme

To SEE What's In The QL's Future

Just LOOK Inside

IQLR.....

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PUBLISHER: Robert Dyl, Sr.

(ISSN 1078-5787)

IQLR is published bi-monthly, our volume year begins on 1 May and runs through 30 April. Subscriptions begin with the current issue at the time of sign up. Subscription rates are as follows:

USA	$24.00 per year
British Isles & Europe	£25.00 per year
Canada	$27.00 (US Funds)
Central/South America	$34.00 (US Funds)
Rest of World	$40.00 (US Funds)

UK and European readers may send their subscriptions to our European office listed above. Postal, Euro, Bank and Personal Cheques in Pounds Sterling, drawn on a UK bank should be made payable to IQLR.

Payment in US $ can be made by either a Postal, Bank or Personal cheque (drawn on a US BANK) or bank notes (£ or DM equivalent to the US $ amount) should be sent to our North American office.

Credit Card Holders may subscribe by either calling or sending their Credit Card number and Expiry date to: MIRACLE SYSTEMS LTD - 20 Mow Barton - Yate, Bristol BS17 5NF - UK Tel/Fax: (01454) 883 602

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Article and Advertising DEADLINES are as follows:

Issue 1	10 April
Issue 2	10 June
Issue 3	10 August
Issue 4	10 October
Issue 5	10 December
Issue 6	10 February

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IQLR is produced using the following equipment : A Tower Cased QL with Super Gold Card, Qubide Hard Disk Interface, superHermes, Minerva MK II and a 486 PC, driven by a 5Meg QXL. Masters are produced using a Hewlett Packard DeskJet 520 and an Epson 800+ InkJet printers.

Contents.....

3	SMSQ/E (GC -SGC & Atari Versions)
8	Town Crier
9	Bits and Pieces
10	Solvit-Plus 2
12	QLers in Oak Ridge
15	Super QL Report (68060)
18	A Future for the QL
26	Easy NETworking
30	Windows Icon's and the QXL
31	A Brief Note
32	DeskJet 320 Printer - A REVIEW
34	CDROM on a QXL
36	CD_PLAYER_BAS
41	A Scot's Visit to Oak Ridge
42	PRIZE WINNERS
45	It's TIME for the NEXT LEAP

Advertisers.....

6	QUANTA
7	JOCHEN MERZ SOFTWARE
11	Q BRANCH
16	QUO VADIS DESIGN
17	PROGS
28	MECHANICAL AFFINITY
29	DI-REN
33	TF SERVICES
35	MINI-MART OF VALUES
39	MIRACLE SYSTEMS LTD
40	W. N. RICHARDSON & CO
43	QUBBESOFT P/D
44	DIGITAL PRECIS ION LTD
54	QBOX-USA
55	MIRACLE SYSTEMS LTD

SMSQ/E

Portslade, Sussex, GREAT BRITAIN - Roy Wood

Super Gold Card and Atari Versions

When I first offered to write about SMSQ/E for IQLR I was not at all sure about what the system actually did. The whole idea came about because I mentioned to Bob Dyl that I thought that amongst all the technical people that were going to write about the program there should be something by some-one who rarely wrote any code for himself and thus he would get a "what this does for the ordinary man" type review to set alongside the others. Well, the next thing I knew I had a review copy(v2.47), but this article has not come easy. For one thing most of the time this SMSQ/E sits in the background like any decent operating system and it is only when you try to do something unusual that you notice it is there. For another thing my original combination of Super Gold Card and Minerva is so fast that the speed gain from SMSQ/E is hard to assess so there was no easy starting point for this piece.

One thing that definitely happens when you run SMSQ/E on a Minerva system is that Minerva disappears completely and any commands that Minerva has added to your system are no longer there. That said, many of these commands are echoed or replaced by SMSQ/E and so, unless you use Multibasic or some of the more sophisticated functions of Minerva, you may not notice the difference at first. Since I type a lot of German names and addresses I use the umlauts a lot and without the Minerva "compose characters" function I found myself having to pin up a list of the QL character table so I could find these and that was a touch annoying.

Boot- up Confusions. The first thing that threw me was that, having inserted "LRESPR SMSQ/E_GOLD" into my Boot file, each time I booted up the system it kept looping back or, even worse, running the boot file from FLP1_ instead of WIN1_(I was in the habit of keeping a disk in FLP1_ with a different Boot file on it to do something completely different to my normal setup). SMSQ/E will not actually boot up a version of the file which is lower than or equal to the one it is currently running but it does do a complete reset when it boots so anything before it in the file it lost. Since I wanted to try things out and compare the system to the Minerva one that I was used to I had to put in an option to choose between the two systems. SMSQ/E contains new and updated versions of the Pointer environment so you do not need Wman,Ptr_gen, or Hot_rext and the commands built in to SBASIC also make TkII redundant so the start of my boot file had to read thus:

```
150 TK2_EXT                                  :REMark Initiate toolkit for LRESPR command*
160 MODE 4
170 CACHE ON                                 :REMark Super Gold Card only
180 IF VER$<> 'HBA'                          :REMark Test for SMSQ/E @
190 PRINT "INSTALL SMSQ ?":Q$=INKEY$(-1)
200 IF Q$="Y" OR Q$="y"
210 CSIZE 1,1
220 PRINT "*** BOOT FILE v4.27 ***"
230 PRINT "*** SMSQ / HARDDISK ***"
240 LRESPR WIN1_PROGS_smsq_gold
250 ELSE
260 CSIZE 1,1
270 PRINT "*** BOOT FILE v4.27 ***"
280 PRINT "*** Minerva / HARDDISK ***"
290 LRESPR win1_progs_ptr_gen                :REMark These extensions are not required
300 LRESPR win1_progs_wman                   :REMark by SMSQ/E as they are all built in
310 LRESPR win1_progs_hot_rext
315 LRESPR win1_progs_OUTLN_rext
320 END IF
330 END IF
```

* Although SMSQ/E contains all the commands of Tk2 you still need to intiate it to use LRESPR @ You only need to test for SMSQ/E if you wish to have the ability to choose your operating system. If you do not need this option then just LRESPR SMSQ/E and it tests itself.

SMSQ/E - (cont'd)

Having run SMSQ/E up on my system the next task was to try it on a JM QL with a Gold Card. Here the speed gains show up more clearly and the improvement to the screen handling is very clear.

Running the System. As I said above the real test of any operating system is 'can you see it?' - if you can the chances are that it is not that good. SMSQ/E passes this test about 90% of the time. In normal use it is practically invisible and the only time that you realise that you are running it is when the screen clears and resets quicker than it used to or you do something that QDOS would not allow like reading a DOS or TOS formatted disk. These disks show up in exactly the same way as normal QL disks and there is no problem at all when you want to read an ASCII file from a PC into you word or text processor. There are moments where the system throws up the odd problem. One of these is the format command. I have been used to going to QPAC2 and issuing a direct "FORMAT" command and for HD disks this is OK but SMSQ/E, unlike most other systems, tests the disks themselves and not the drives so it will try to format any disk to HD capacity. Most DD disks are almost capable of being HDs (I do know someone who buys good DD disks and drills holes in them but I would not chance it) so the DV3 drivers try to format them to HD capacity. The previous format procedure had become so automatic for me that I had to retrain myself to issue the '_*D' suffix that SMSQ/E needs to tell it what to do.

I tried SMSQ/E on several people's systems and with as many different programs as I could find and the result was almost always approval. Some people had to rewrite their boot files to adjust to some of the new commands (one user had a large number of calls to Minerva Multibasic and, since SMSQ/E multitasks SBASIC these were unnecessary and needed a major rewrite) but everyone was impressed by one or other of the improvements.

I also obtained a copy of SMSQ/E for John Wakefield who runs a Security Systems company in Worthing, Sussex. He not only runs his entire office from three QLs but writes his own programs for them too! (see the article in IQLR Vol 5, Issue 2). John had experienced some problems with v.2.54 giving an erratic printout when used with the Miracle Centronics interface and after a few phone calls to Jochen Merz v.2.58 finally arrived which had solved a lot of these problems. A lot of the errors introduced when printing in this way come from the fact that SMSQ/E speeds up the serial output and, since John's machines did not have the benefit of Hermes the results are a bit erratic. There is a command (SER_PAUSE 'n') in SMSQ/E which will slow this output back down to a speed which the interface can handle but the value given at 'n' will depend entirely on the interface that you are using and the printer that you are sending to. This problem did not affect my setup because I have a Super Gold Card and use the parallel output for all my printing but, to check the results I got Steve Hall to run SMSQ/E on his Gold Card machine using a spare Centronics interface that I had laying around.

We found that printing from Text 87 using v2.58 in the fast mode did need the SER_PAUSE command in the boot file but with a very low value for the parameter. Standard printing to a Stylus 800 was faultless but there were odd errors generated when printing to a 24 pin printer without the pause added.

People who use QD will find that there is an SBasic interface thing built into the system that can be called from the F10 option from within the program. This will swiftly parse the code you have written and then run the program allowing you to check your code as soon as you have finished and see the results on the screen. The SBasic thing will pick up typing and syntax errors before attempting to run the program and this improves the lot of the programmer considerably.

SMSQ/E on the Atari Stacy.

The Atari Stacy is a bit of a strange animal. It was only made in small quantities and was never very successful but it's attraction to QL users was always that it was a portable computer (well you need strong arms and there are no batteries) that would run QL programs if you had the SMS module from Furst. SMSQ/E will, however, run directly on the Stacy with no emulator and all that is needed is to copy the program disk onto the Atari's Hard disk and execute it from the front end screen and 'voila!'a miniature QL screen appears in the top left hand corner of the screen. One drawback with the Stacy is the awful LCD screen which is unreadable when read from anything apart from the angle it is set for and, since a lot of older QL programs were written for a black screen with white or coloured writing on it, reading some of these is eye-straining in the extreme. Although the screen has a large pixel count and therefore can display a degree of detail the contrast is very hard to adjust to suit all

the programs you may need to run and the ones that come off best are the later PE programs which can be expanded to fill the whole screen area and have the facility to set the background to white . The Monochrome screen driver that you need to specify when ordering the program for the Stacy has the facility to produce inverse video but that makes programs like 'Xchange' even harder to read. You can plug the Stacy into an external monitor and that improves the screen legibility but then you have, of course, lost the portability.

The saving grace of all this is that you have a portable QL and, if you spend a bit of time playing with the screen resolution, you have a very useful machine. The Stacy itself is quite expensive to purchase and very hard to find, so, if you want a portable QL the QXL and a portable PC may be the best bet but if you already have a Stacy and a few other Atari computers then this is a GOOD ROUTE TO TRAVEL.

Conclusions. SMSQ/E is quite an expensive package in QL terms but the price that it is selling for reflects the amount of work the has gone into it's writing. That work continues at a furious pace (I started this article with v2.47 and I am now writing with v2.59) and each new version that appears is an improvement on the previous one. this should not inspire the potential purchaser to wait because all upgrades of the basic system are free and there seem to be very few bugs left to eliminate (no program is ever bug free!!!).

If you look through the changes.txt file on the disk you can see that the various versions are a result either of increasingly obscure bugs or changes requested by users such as the ability of the program editor to stuff the current line into ed on a press of F10 (shift F5). This will allow you to put the cursor on a SBasic line in the SMSQ/E editor, press F10, and then exit the editor back to the command line with ESC. If you then call the stuffer buffer with ALT/SPACE you will find the line that you have chosen appears, minus the line number, on the command line. This is a useful function for checking problem lines in programs. Many of the other changes are very much in the realm of the programmer and I must confess that I do not really understand some of these at all.

The system contains a number of other functions such as Pipes and the History Device but I have, as yet, found very little use for but programmers may find that their presence save lines of code. One very useful aspect of the way in which it handles daughter jobs is that if a program started in a SBasic Daughter loads extensions those extensions are only loaded for the particular SBasic that you have started. As soon as the SBasic is removed (just type 'Quit' at the end of the program) the extensions go with it. This greatly tidies up the amount of extras in the computer's memory.

The benefit that you will get from running SMSQ/E is dependent on your current system's original starting point and the use that you put your computer to. From a standard QL with a Gold Card the speed and handling gain is the most impressive but even the efficient Minerva/Super Gold Card system that I normally run showed improvements and the executable basic is a definite plus. The real value of SMSQ/E is that, if it becomes widespread, programmers will be able to write for one system on a range of machines. Forget ROM versions or emulator quirks this could be the way to ensure that every machine runs every program in the same way and that is a considerable bonus. It now becomes viable to write programs and filters that will import/export from and to the standard PC programs like the Lotus spreadsheets, Word Perfect and others that are in common use in your working environment and then your QL becomes a lot more useful.

QDOS has seen us through the last twelve years and if SMSQ/E is marketed outside the QL community (to the Atari market for instance) we could see a resurgence of program writing and be able to keep our favourite computer alive for another twelve. One thing that stands out about it is that it will run a large amount of old QL software without a murmur and Microsoft have problems between sequential versions of Windows and that is without multitasking!

YES THIS IS THE QL OF THE FUTURE.

(Editor's Note: For an indepth evaluation of the QXL version of SMSQ/E please see Volume 4, Issue 6, Page 71 of IQLR.)

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Independent QL Users Group

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Formed in 1984, QUANTA (The QL Users ANd Tinkerers Association) has endeavoured to promote the Sinclair QL Computer and more recently its many offsprings but essentially the "QDOS" operating system as devised by Tony Tebby.

There is a large and growing, sophisticated, supply of software which seeks to take advantage of the many benefits offered by QDOS, SMSQ etc., such as Multitasking, a recent arrival on the PC but a part of QDOS for over 10 years, the Pointer Environment and the many advantages of 32 bit computing.

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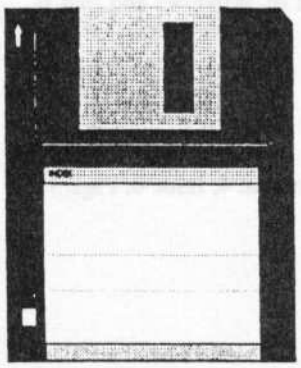

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THE NEW PHONE NUMBERS ARE ACTIVE!!! Please don't use the old numbers anymore!

QMAKE V4 is new - it allows assembly on dependencies (e.g. assemble files in case not directly related files have changed, with various options).
SMSQ/E has got more features again (you expected it, didn't you) and the (Super)GoldCard version comes with SER Mouse now!
If you are looking for micro harddisk LED plugs like the ones used on new Quantum harddisks: I got them here! Complete cable with plug and LED for DM 4,90 - they are really difficult to get hold of!
Here the version numbers of software which is part of packages, to keep you up-to-date: Pointer Interface V1.65, Window Manager V1.48, MenuConfig V3.11, QPTR extension V0.11, WinSelect V1.08 (for ATARI users only).

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Special offer: if you buy SMSQ/E together with a QVME card, SuperGOLDCard or QXL card, then you get a discount of DM 50,-!

Applications

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DataDesign		**[V3]**	**DM 149,–**

SMSQ/E V2.60

More news on **SMSQ/E**: updates are free, just send master disk(s) & return postage or use the free mailbox update service!
Again, more nice features: you can, for example, stuff the contents of a complete SuperBASIC program line out of ED into the HOTKEY stuffer buffer, and extract it everywhere by pressing ALT SPACE! This allows you to test-execute single lines in other SBASICs or transfer lines easily into other programs, e.g. word processors!
Albin Hessler gave his kind permission to bundle SER Mouse with every **SMSQ/E** for the GoldCard and SuperGoldCard. This applies to free updates too. The manual is now Revision 3 - including the SER Mouse documentation and all the changes so far. A new manual costs **DM 16,-**.

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As a special bonus (we know that many users own more than one system), we offer the version of an additional system 33% more. This also applies to the upgrades, e.g. DM 66.66 instead of DM 50,-, which, we think is very fair (it just covers extra disks and manuals).

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Town Crier Announcements of Upcomming Events

2 September 1995 *(Saturday)*

International QL Meeting

(Sponsored by: Sin_QL Air)

St Joris College
Roostenlaan
Eindhoven
The NETHERLANDS

22-23 September 1995 *(Friday-Saturday)*

German QL Workshop

Contact: Friedemann Oertel
Tel: +49 08652 1895

Munich
GERMANY

---

7 October 1995 *(Saturday)*

Quanta Workshop

Contact: Graham Evans
Tel: +44 01703 403350

Horizon Centre
Portsmouth
GREAT BRITAIN

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22 October 1995 *(Sunday)*

Quanta Workshop

Contact: Andrew Frenic

Georgian House Hotel
Blackrod, nr Bolton
GREAT BRITAIN

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4 November 1995 *(Saturday)*

International QL Meeting

(Sponsored by: Sin_QL Air)

St Joris College
Roostenlaan
Eindhoven
The NETHERLANDS

---

11 November 1995 *(Saturday)*

Quanta Workshop

Contact: Ken Bain
Tel: +44 01932 347432

Surrey
GREAT BRITAIN

Bits and Pieces

Duisburg, GERMANY - Jochen Merz

News from Jochen Merz Software - First some information about the new numbers: telephone is 0203-502011, and it is telephone and answering machine only, no fax anymore. Fax is 502012, and you can now send a fax 24 hours a day without disturbing me. Mailbox is 502013, and it is still working on the same modem as before (14400 or ZyX 16800). I am still not sure about a 28800 modem, as new modems are coming soon which will allow ISDN data transfer at 64kBit as well as the old analogue modes (and Group 4 faxes, by the way - extremely fast!). Therefore, buying a 28800 modem could soon be a waste of money. You can see, I am very undecided, but a decision will be made as soon as the new modems are available and the prices and features known. However, the new digital lines seem to improve international data transfer: the cps rates are usually 10 to 15% higher, and the breaks and renegotiation because of line noise seems to have disappeared completely. I have not fully managed to get everything into a state where every call is answered as expected.

To give you an idea how the system works, an example: up to eight devices can be connected, and up to eight phone numbers can be assigned to any device and vice versa. Let's say, my 502011 goes to the internal phone 1 (my main phone and answering machine) and to phone 4 (my portable). If someone dials 502011, both phones ring. When I pick up one phone and someone dials 502011 again, the other phone rings - the caller does not get a busy tone. If more phones are enabled on the same number, busy will only occur if all phones assigned to that number are actually busy. Confusing!? but useful, as I could connect a second modem to 502013 and allow more than one caller to use the mailbox at the same time. So, if you call any of the numbers and no one answers, it is possible that the device is in use but it does not tell you. Just try a bit later again!

On to the computer business: QMAKE has reached V4.00 adding nice features: you can give a list of files on which the assembly of other files can depend. Say, include file changes, you want some files to be re-assembled, then you had to force-assemble all the files. Now you can tell QMAKE in the LINK-file in a very easy way which files to check for modification in relation to other files. File dependencies can be set per file or for a list of files, to make life easy. Upgrade from any previous version together with a new manual is DM 16,-.

QTPI and SMSQ/E: We have found that SEALINK up - and downloads are much more reliable if the buffers are set to

SER_BUFF 80,800

or, if it is connected to SER2, use

SER_BUFF 2,80,800

With the large default buffers, the re-sync failed if things go wrong and too much is sent from one side ahead into the buffer.

DOS Disks: There are some things about the DOS disk format which some of you might not have realised yet. We (in the QDOS/SMSQ world) assume it to be natural that the computer recognises a disk change on the same machine or a disk modification on a different machine. Try (or better NOT try) putting an empty DOS disk into an SMSQ/E machine, do a DIR flp1_, save a file (you guessed it, let us save FRED.bas), take the disk to a DOS/Windows machine, delete FRED.bas and save a different file with different contents, e.g. JOE.bas. Take the disk back to your SMSQ/E machine and DIR flp1_ again. It seems, the disk was not modified, the contents are still cached. There is no way for SMSQ/E to detect a modification. There is no way for DOS to detect this sort of modification, and that is why floppy disk operation take ages. Try deleting 50 files in SMSQ/E and try deleting 50 files in Windows from a floppy disk and you will see what I mean! Windows re-read the disk very often to ensure it is still the same. How does it work on QDOS disks? There are three things which QDOS/SMSQ checks, and they are all in the first sector of the disk, therefore only one sector has to be read for a check. The three items are the disk name, the random format number, and the modification counter. The counter is modified every time a file is opened, therefore it changes even if the disk is modified on a different machine! Unfortunately, DOS does not have this feature. SMSQ/E could change the DOS medium number, but this would only work between

two SMSQ/E machines. As DOS does not modify this number, no one can tell if the disk contents have changed! There does not seem to be a way round this problem except from re-reading the whole disk map and directory if a file is opened, but this would make floppy disk operations very slow. The only way to get rid of the floppy disk cache entries in SMSQ/E is by entering the command

```
DEL_DEFB
```

This forces the disk to be re-read on the next access. Warning: if you forget to do this and you modify the disk on two machines, then it is very likely that you will screw up the disk completely. So, better do a DEL_DEFB before you insert a transfer disk.

Executable Programs and DOS Disks: You have probably noticed that you cannot EXECute programs from a DOS disk. This is not really surprising, as any executable information is not stored on a DOS disk. Every file on this type of disk is assumed to be filetype 0, which is used for every "ordinary" file, e.g. texts, documents, data etc. Files, which can be executed, are filetype 1, and an "E" flag in QPAC2 shows that it is executable. Some customers would like to boot from one DOS or TOS disk. This would include setting up HOTKEYs to execute programs. One way of getting round this problem is to read all the additional data which is lost when the file is copied to a DOS disk, and then copy the file from the DOS disk to a RAM disk later during boot. You can add the excutable information to the file on the RAM disk and use it again like any other executable file. Reading the information is done by

```
OPEN#3,executable_file  HGET#3,length,spare,type,exdat  CLOSE#3
```

type has to be 1, otherwise it is not an executable. The important value is the fourth value, exdat. You can copy the file onto the DOS disk, and add some lines to your BOOT file:

```
5000 COPY_O flp1_file TO ram1_file
5010 OPEN#3,ram1_file
5020 HGET#2,length:REMark read length
5030 HPUT#3,length,0,1,value_of_exdat
5040 CLOSE#3
```

Of course, the value_of_exdat has to be the real value! After doing this you can EXECute the ram1_file or HOT_CHP1 it or do with it whatever you like.

SOLVIT-PLUS 2

Amsterdam, NETHERLANDS - Geoff Wicks

Users of SOLVIT-PLUS 2 who purchased the programme from Dilwyn Jones Computing are entitled to a free upgrade. If you wish to take advantage of this offer, send Master Disk 1 and one I.R.C. The Disk will be returned with the latest version.

Those of you who take advantage of this offer will be entitled to a discount on a new software product which will be advertised and sold later this year as a sister programme to SOLVIT-PLUS 2.

Please note our advert on the Mini-Mart of Values page elsewhere in this issue, it includes our mailing address.

Professional & Graphical Software

LINEdesign

With LINEdesign, you can create artistic drawings, technical drawings, process bitmaps (even scale and rotate them!), and any kind of vector drawings. You can draw lines, curves, circles, ellipses, pies, squares, rectangles, rectangles with rounded corners, and any combination of these to create the most fabulous drawings ever seen. Because LINEdesign is a vector drawing program, any part of the picture can be moved, scaled, rotated, slanted without any loss of precision or resolution. In LINEdesign, pictures are device independant, meaning that the printout will be the same on any printer (e.g. same size and position).

Also LINEdesign is good at handling text. You can easily put titles and full paragraphs on the page. You can choose from a large variety of fonts (you get 130 with the program), and they can be displayed at any size, rotation, etc. If the fonts which are given with the program are not enough for you, there is a special program to convert Adobe Type 1 fonts for use by LINEdesign (pfb2pff).

LINEdesign is a drawing program, but it can also be used by people who are not good at drawing. LINEdesign is a great program for making leaflets, posters, and any kind of printed work. To add a graphical touch, you get about 150 clipart pictures, including banners, borders and general purpose drawings. LINEdesign will reproduce everything at the highest possible quality !

LINEdesign is delivered with an extensive manual, which includes a full printout of all the fonts and the clipart given with the program.

PROforma

PROforma is a vector graphics library. It is very powerful, and can be used for any application which needs high quality output. PROforma is used by LINEdesign, PFdata and PFlist to produce the output. PROforma supports black and white vector graphics and includes :

* clipping paths
* transformation matrixes
* grayshades, (thick) lines and bezier curves
* filling using even odd and winding rule
* vector (outline) fonts, which can be used in any size. Hinting is used to make sure small fonts look good.
* true WYSIWIG. PROforma can generate output for screen and printer, and the output will be exactly the same on both (with any difference due to difference in resolution).
* bitmaps. Although PROforma is a vector graphics library, you can include classic bitmaps so you can still use your old graphics.

PROforma (API) package is supplied with a comprehensive manual and examples.

pfb2pff This program allows you to convert Adobe Type 1 pfb fonts for use by PROforma.

DATAdesign

Never before has it been so easy to create, fill in and maintain your personal databases. To start a new file, just type the names of the fields. To add or delete a field, no problem, just do it. To change the name of a field, just indicate it.

What's more you can choose to look at only those fields you want, and in any order you specify. And you can select which records you want to view, and which not.

DATAdesign allows you to have some hidden comments for each record, have a general look at the file (in tabulated form) or to transfer a record into the scrap or hotkey buffer, so you can easily import a record in your favorite word processor or editor !

Security is a strong point for DATAdesign. Usually files will be memory based, for maximum speed. Files can also be disk based, making sure all changes are immediatly stored on disk, so even in the event of a power failure, you can at most lose the changes to one record !

Naturally, DATAdesign is good at sorting and searching. And if you were using another database, you can convert Archive or Flashback files to DATAdesign.

DATAdesign API

Using the API, programmers can unleash the real power of the DATAdesign engine, getting a relational database with a bonus, you don't even need a key field. The API gives you a unique and powerful record at a time data manipulation extension to the language you already use.

PFdata

Interesting program for all DATAdesign owners, to create hardcopy of your DATAdesign files using PROforma. You can use a large selection of fonts, in any requested size. Also LINEdesign pictures can be included to add logo's, boxes, etc. Several records can be printed on each page,...

PFlist

Easy to use program to create listings on any printer (especially inkjet and laser). Can include a footer with filename and filedate, always allows perforation of your pages. The font and fontsize can be chosen (PFlist uses PROforma). PFlist can create your listings in two columns, and in landscape (or both).

LINEdesign	5000 (4350)	DATAdesign	3000 (2700)
fontpack	4000 (3520)	DATAdesign api	1000 (930)
PFlist	1000 (930)	PROforma api	5000 (4350)
PFdata	1000 (930)	pfb2pff	3000 (2700)

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QLers in Oak Ridge

Santa Clara, California, USA - James D Hunkins

My small commuter prop plane was swooping low over a lush, green region. Everywhere I looked I saw small hills covered with a thick growth of trees and shrubs. Rivers flowed, their water dark and sluggish. Scattered throughout this rich landscape were houses tucked between trees, roads winding through the land, and the fast approaching runway of the local airport. As I wearily waited for my plane to land, I started to feel the excitement. Even after a night long series of flights from California, I was finally here. My job was far behind. In front of me, QLers were gathering from all over the world. This trip promised to be a quick and intense gathering of one of the most determined and fun groups of computer enthusiasts you will find anywhere. I had arrived at the 3rd Annual North American QL Show.

After landing, I immediately grabbed my bags and headed for my rental car. At the rental desk one girl was trying to explain to a customer why they had no cars available unless you had a reservation. But they would have one tomorrow that the customer could have for one day only (too bad he was leaving town again that night). I thought to myself, 'sure glad that I was prepared and had a reservation!' With a tired but confident sway, I approached the counter and announced myself. Funny, I got the same apologetic look from the guy helping me that the girl was giving the other customer. Oh, oh!

It turns out that they only had a Hundai available in the class I had reserved. Sorry, but driving a Hundai doesn't excite me (in fact, in a strange town with unknown traffic, it downright scares me!). But for only $5 extra a day, he could let me have a Ford Explorer. So, thinking of the extra safety a large vehicle with a high view would offer, along with the extra seating capacity (not to mention I would feel really macho driving such a cool large vehicle), I forked over the extra cash, and headed out into the bright humid morning. QLers, here I come.

Thanks to the local hosts Mel and Doug LaVerne and co-hostess Eleanor LaVerne, that for the next several days, it was non-stop activities. In addition to the show itself, I enjoyed multiple dinners and drinks, touring local museums, and enjoyed shopping with some of the European visitors. I was lucky to catch five hours sleep each night, along with a few appreciated cat naps during well placed lulls between events.

Now that I have exercised my literary fluidity to give you just a hint at how fun and intense the experience was, I will discuss in detail as to the who and what actually did occur. This will hopefully refresh the memories of those lucky enough to attend and give everyone else a sampling of what goes on at our shows on this side of the pond. It might also serve to induce everyone else to join us for next year's show!

They Came From Everywhere... First, lets talk about some of the people who were there. Just the list of names and places they came in from really shows the international flavor of our community! In advance, I will express the traditional (and heartfelt) apologies for those I miss or those names I mangle. So much was going on and I am so bad with names (don't get to hopeful, I do remember everyone's face and personality), I know that some of this will be in error.

In addition to Bob Dyl and the hosts that I mentioned before, we had a large contingent from outside the USA. Many of these visitors came over early or stayed on to turn the trip into a vacation/business combination. From Europe we had Jochen Merz (Germany) and friends Carlos Brennecke (Germany) and Urs Konig (Switzerland). Michael Simpson (Brittish) flew in from Germany, while Tony Firshman and Lawrence Reeves of TF Services arrived from England. Stuart Honeyball of Miracle Systems Ltd (England) made another appearance this year while Giles Walker was our Scottish representative. A little closer to home saw Hugh Howie (Canada) return.

Many user groups from the states were represented. Al Bolm of Nesqlug showed up, along with Ruth Fegley and Barry Washington from Cats. Frank and Carol Davis and Paul Holmgren (Mechanical Affinity/Update Magazine) made a repeat appearance. Don Walterman and John Impellizeri of QBOX USA were there, along with Tim Swenson of QL Hacker's Journal. Bill Cable of Wood and Wind Computing made an appearance.

Others came in from all over the continent. John Rish and his wife drove for 24 hours from San Antonio, Texas. March and Madalyn Renick showed up from Florida, Tony Brooks came from Georgia, while Harry Spencer

arrived from Alabama. And there were many more including many wives who came along for the social atmosphere (or even better as a QL enthusiast).

Showtime... Of course, the official reason that everyone showed up was the for show itself. This year it was held in Faith Luthern Church which was only a few blocks from the 'official' show motel. There was plenty of parking and floor space. The vendors, publications, user groups, and others were scattered around the floor. A partial list of tables includes; Cowo Electronics (QTop), IQLR, Jochen Merz Software, Mechanical Affinity, Miracle, Nesqlug, QBox USA, TF Services, Update Magazine, and Wood and Wind Computing.

The day started fairly early, with people wandering around, constantly talking and playing around on different systems. Some of us got up early enough for a real breakfast (not me), while others made do with coffee, donuts and fruit supplied at the show. The hosts and hostess made sure that everyone was greeted and no one was lacking. Bob Dyl of IQLR, in addition to doing the planning/organisation work, took time from his busy workload to talk to everyone on the floor and to award the door prizes (which were generously donated by different vendors).

The winners had the pleasure of coming up and selecting a plastic egg (no kidding), each containing a different prize. A rather neat idea. The floor stayed busy all day. One observation one of the European traders was about the buying patterns. From what I understand, at a typical European show, he would have had a lot more people trying to buy from him. However, over here, people would patiently wait in line, listening to everything he told his customers. Time spent with each person was longer but purchases were larger. This probably has something to do with the fact that Europe has several QL shows where people can attend throughout the year. In the states we only get one show throughout the year in which to talk, look, and purchase. Mail order does work, but there is nothing like hands on.

When it was time to wrap up the show and get ready for dinner, some of the different vendors weren't ready to quit. However, dinner was waiting and after a long, busy, and tiring day, even QLers realise that food does help. For those who didn't want to quit, I am happy to say that I saw several purchases made during the next day or two even though the show had officially completed. In a way this was good, as it gave some of us time to think and learn more about what we wanted to purchase.

Dinner that night was at a small and simple looking restaurant. We drove into the parking lot and found that we were the only ones there. In fact, the doors were locked. After a few Don Walterman and John Impellizzeri knocks, a waiter showed up. It turns out that we were the first ones there and the place only opened for dinner. Hmmm..., a bit classy?

Inside we were greeted by well dressed, efficient and friendly waiters and waitresses. The place had limited seating which we took up the majority. The tables were well set and the chairs were tall wooden types. There seemed to be a very large number of people waiting on us.

Bread and drinks were quickly served, everyone settled into groups at different tables, and the talk of the day continued. The food was plentiful and served rapidly. I myself had the pleasure of dining on fresh Salmon flown in from the Pacific NorthWest. I can safely say that it was the best salmon that I have ever had (even though I live in Northern California fairly near where they catch the them).

At my table (I was sitting with Jochen, Urs, and Carlos, if I recall), several of us went for a 'French' desert, a French lemon tart. Very interesting since the table represented three different countries, none of which was France. The tart was well named. It was VERY TART. Not being much of a desert eater these days, I though it was just my differing tastes. But as I began to feel a dry rasping feeling and after taste in the back of my throat, I noticed that the other two with the same desert were also making funny faces and starting to make mild little coughs as they tried to clear their throats. Now, don't get me wrong, the tart was probably a perfect tart, but I will stick to simpler tastes from now on. I noticed that the other person at our table was having a delicious Chocolate type dessert which he was obviously enjoying. The meal was over, and we 'tarted' people had something extra to laugh and joke about for some time to come. Oh yes, next time you leave a message for John Impellizzeri on QBOX USA or talk to him, you might ask why he lit his napkin on fire with the table's candle. I think that it was an accident, but knowing John... Luckily no one was hurt and the fire sprinklers did not go on.

The Social Events... As I mentioned, many of use were in Oak Ridge for several days, enjoying the technical conversations and social activities surrounding the show. We went out to dinner together everyday we were there. One very enjoyable meal was at a Chinese restaurant on a river. I also seem to remember something about the first night we were there, but the previous night's flight seems to have blurred the details. I did find that there was food for everyone's taste and diet at each place we had dinner at.

We ended up with two unofficial drinking establishments. One was down the street, just a short walk (more like a major hike, but the exercise was welcome). Amidst the technical conversations we found time to demonstrate our artistic talents by drawing simple images on napkins and trying to guess what they meant. It was also amazing at just how many type of jokes were told. It turns out that some of the jokes didn't directly translate on a cultural level. You tell a typical American lawyer joke to an Englishman and you get a blank look. But it turns out in England they tell the same jokes about different professions. Once we figured that out, it was no holds barred on stupid jokes.

The other nightlife of interest was at a Mexican restaurant next door to the motel. They had a pleasant patio bar area which we converged on several times. One time one of our English guests made a request for a large mug for his beer. It seems that he was getting tired of the little American glasses that were served with the pitchers of beer.

The girl said no problem and came back with not just one large mug but mugs for everyone. The mugs were so big that we had to order more pitchers just to fill them up. Our waitress knew what she was doing. Our English friends had no complaints (nor did the rest of us).

During the downing of these large mugs of beer,many stories were exchanged. My personal favorite has to do with how many bugs can be made in a small piece of code, kind of a reverse to the challenge in the 'C' language to make a single line of code do as much as possible. Tony Firshman and Lawrence Reeves told me about a small piece of test code done in assembly language that they had used. The code (if memory serves) was about 16 bytes long and ended up with 5 or 6 bugs. Something about doing things over the phone, late at night, etc, etc. By the way, these guys really do know what they are doing. My personal assurances that their commercial products are of the highest quality. The story however is something that everyone who writes software can relate to. I am still laughing (and NOT telling my worse bug stories).

On one day a group of us went to the Museum of Energy. Since Oak Ridge is the home of the first Atomic Power facility in this country, they have a lot of information on it and the growth of energy through the ages. We all could have spent many more hours there if time allowed.

But what can I say. Our German and Swiss friends wanted to hit the mall. It turns out that many things are much cheaper here in the States, including everything from clothes to video arcade games. Jochen and Urs teamed up to defeat a couple of video games. They played so long that Jochen actually wore a hole in his thumb.

Well, by now everyone should have a good idea of just how great this show was, both QL wise and socially. Personally, I came back loaded with new software and hardware, brimming with new project ideas, and exhausted. I have many new friends (I am waiting for them to visit, you know who you are) and got reacquainted with others that I had met at last year's show or through correspondence and the bulliten boards.

In Closing... Just a few pieces of business to wrap up. The first one is to once again thank everyone involved, from Bob at IQLR to the LaVernes (nice kettle drum playing, Doug!) to all the vendors and other QLers who travelled so far to make this work again.

For those of you who promised stuff, I am waiting. Herb Shaft for example promised to upload some of his stereogram works onto QBOX USA (not that I am trying to put you on the spot Herb, but your stuff is really neat!). For all those that I discussed different projects with, you will be hearing from me in the near future as time allows (don't be afraid to continue on your own for now, of course). As for next year, I can't wait !!!

Super QL Report

Oldbury, West Midlands, GREAT BRITAIN - Simon N Goodwin

NEWS - FIRST QDOS ON 68060!

I now have Qdos running oo a 50 MHz 68060 system, with 10 Mb RAM. The processor came direct from Motorola, as part of their Alpha/Beta test program, and is fitted on a CyberStorm Amiga accelerator board, made by Phase Five in Germany; Escom have agreed to use this board on thousands of the new batch of machines they're making now they have taken over the Amiga rights fromthe Bahamanian company that used to own the brand.

This development owes much to the work of Mark J Swift on the PD Amiga Qdos emulator, which is used by many former QL-jockeys in Europe. A new version runs on all the 32 bit 'AGA' Amigas, and the full range of Motorola processors.

Amiga Qdos 3.23 has been tested on the É300 68020-based Amiga 1200, also revived by Escom, and Commodore A4000s with 68030 and 68040 processors. 3.23 is a big advance on the previous 3.21 release - 3.22 was a beta version. The update has MODE 8 support (but without FLASH) full Minerva twin-screen emulation, ann authentic BEEPs using samples taken from a reaa QL! Disk handling is now totally QL compatible and users can read and write QL HD disks, including sub-directories, as if they were in Amiga or PC format, using Frank Swift's updated QL_Handler for Amigados, also freely distributable. You can move and seeect QL files on the desktop, from the command line or any other program, just as if they were on Amiga disks. The handler works like 'CrossDOS', which does the same for PC and ST disk formats.

The 68060 averages about three times the speed of a 25 MHz 68040, making it around 100..250 times the speed of the original QL's 68008! It can execute over 100 million instructions per second at top whack. The on-chip Floating Point unit is capable of around 25 MFLOPs, working to 19 digits of precision in the IEEE format used by C68, along with a Memory Management unit; these are not currently used by Qdos, but Simon Goodwin and SQLUG's George Gwilt have developed a 68060 assembler for Qdos which can access the extra registers, co-processors and addressing modes of the 32 bit Motorola processors. This development is sorely needed as all existing QL assemblers are limited to the original 68000 instruction set. You need at least a 68020 to run GWASS, but then you will be aale to write code for any 68XXX version, and tako advantage of the features in the new processors, which can make programs even faster and more concise.

The best way to write is to check the new system variable at offset 161, which indicatess the CPU modee in hexadecimal - it is zero on a QL or Gold Card, $20 on a Super Gold Card or Amiga 1200, $40 for a 68040, and $60 if the new 68060 is detected.

MEMORY LIMITS - Current expanded Amigas support up to 154Mb of memory but Qdos is limited to 32 Mb at most, because the index of 512 byte slave blocks usss 16 bit words, and 512 x 65536 = 32 Megs. That hardly seems a restriction right now, but might become one in future...

Mark Swift has sorted out the move from 24 bit addressing to 32 bit, so programs can run above the 16 Megabyte boundary of the 68000. This has meant a few changes to Qdos, which sometimes assumes 24 bit addressing in its processing of the channel and task tables, and caused problems for many compiled programs, as both Turbo and QLib sometimes use the top byte of a 32 bit address for other information, ccusing failure on a 32 bit machine. Some program} in hand-crafted assembler are likely to show similar faults. Mac users suffered this when they moved past address $00FFFFFF, and Mark has fixed it with a utility to patch and correct 24 bit references. This works with all Turbo tasks, and most but not all versions of QLiberator. It also fixes Turbo and Supercharged tasks to work with the Minerva-style twin screen display, and system variables relocated into 'fast RAM'.

It is more important than ever than Qdos software developers use '32 bit clean' addressing and do not assume that their code will load at low addresses. Self-modifying code also causes problems because the caches on 68020 and above are not updated when new code is written to memory. In fact such programs are rare, although the original version 1 of Turbo Toolkit and the Qdos Spectrum emulator Speculator 93 fall into this category. The cache must be turned off to run such programs, and this cripples the newer processors which gobble instructions much faster than even 32 bit burst mode memory can deliver them.

Quo Vadis DESIGN

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QL SOFTWARE

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NEWS

*** PROGRAMS SOON TO BE RE-RELEASED ***

PAGE DESIGNER 3 - This classic desktop program is now available again. The program is fully pointer driven and can be used with or without a mouse. The entire system is supplied on 5 disks and includes a large manual. The price will be £40.

QINDEX - Create indexes for text files with this pointer driven program. The price will be £20.

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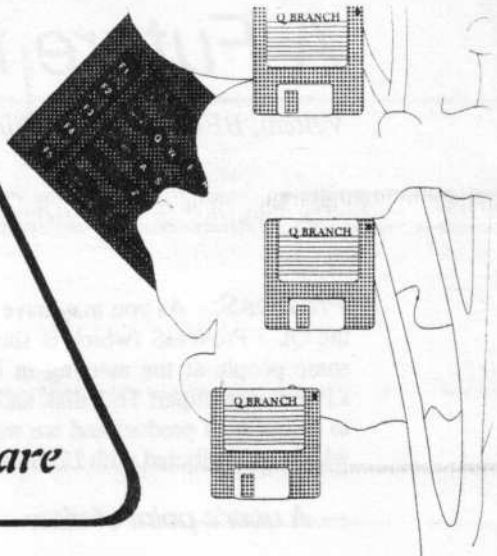

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MORE QUMUNICATIONS SOON.

A Future for the QL

Veltem, BELGIUM - Joachim Van der Auwera

Life according to PROGS

ProWesS: As you may have heard by now, we (PROGS) are working on a new windowing environment for the QL : ProWesS (which is short for 'PROGS Windowing System'). A very early version has been shown to some people at the meeting in Eindhoven, and a slightly more recent version is currently distributed on the LINEdesign clipart Tr-Z disk and used by the hard disk installation program. This new window manager is going to be our next product and we would like to give a bit of an introduction already. (Please note that the ProWesS which is distributed with LINEdesign predates the version discussed here - it isn't even completely compatible).

--- A user's point of view ----

There has been a lot of discussions because of the forthcoming release of the MasterPiece graphics card which should give us a higher resolution than the normal 512x256. Some of use are even lucky enough to have higher resolution as supported on many QXL's and ST-QL emulators. However the screen font is so small, that it is barely legible on any decent resolution. ProWesS is designed to solve this problem (and many others). ProWesS uses PROforma for drawing the window. This allows the user to determine the size which should be used for the text in the window.

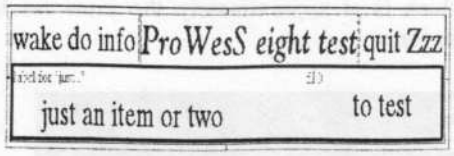
ProWesS is built to be highly configurable and screen independent. Screen independence is achieved by using PROforma (with pixel optimisations). This means that ProWesS is independent of screen resolution and colours. No matter what your screen size is, you specify how big something is in PROforma coordinates - so it will always be the same size on screen, whether its 10 pixels on a low or 50 pixels on a high resolution screen. In fact, ProWesS is even colour independent. Colours are specified as RGB colours, which are always approximated as best possible.

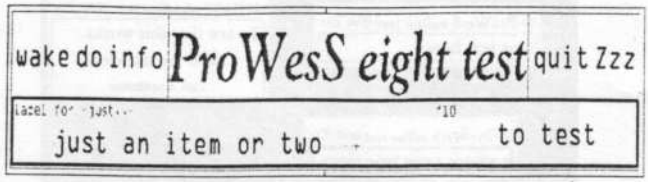
Consistency and configurability are also strong points of ProWesS. Each ProWesS window can always be moved and scaled by indicating the "scale border". This is a border around the window, which is directly visible and has a special pointer. A "hit" (space or left mouse button) on this border allows you to move the window. When you "do" ("enter" or right mouse button) on this border, you can scale the window. Scaling is always done by pulling the corner to increase or decrease the size. The opposite corner stays at the same position. During move and scale actions you can get a preview of the window in the new position and or size. Of course you can also configure whether you want this preview, and also the size and colour of the scale border.

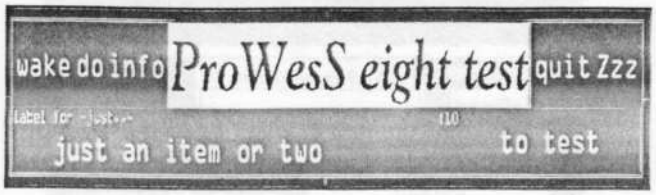
The consistency is also strengthened because configuring ProWesS affects all the windows. The appearance of the whole system is controlled by a central configuration file. There is no need (any longer) to configure the colourways of each application individually. You just have to change the configuration of ProWesS and all windows will automatically conform to it. The configuration is also a lot more flexible. You can for example configure the size of title items to be larger than other items, or use a different font.

A ProWesS window is built from objects of a certain type. Each type can be configured individually (in the centralised configuration file, as mentioned before). The look and feel can even be modified much more. The code for each type is loaded separately and thus can be replaced by other code (newer, changed) for a type with the same name and functionality, but different look and/or behaviour. This allows each user to make his system look the way (s)he wants. For instance a title is such an object, but also the border around a loose item is an object. So you could replace the border by a completely different type, for example to have rounded corners. Also the function to edit a line of text is a separate type, and can be altered.

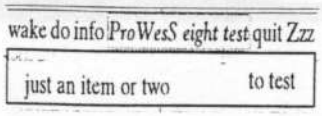
As an example, here are three picture of small program which uses ProWesS, which is executed with three different configurations of ProWesS. The look can be changed to a large extent, including many silly combinations (not shown).

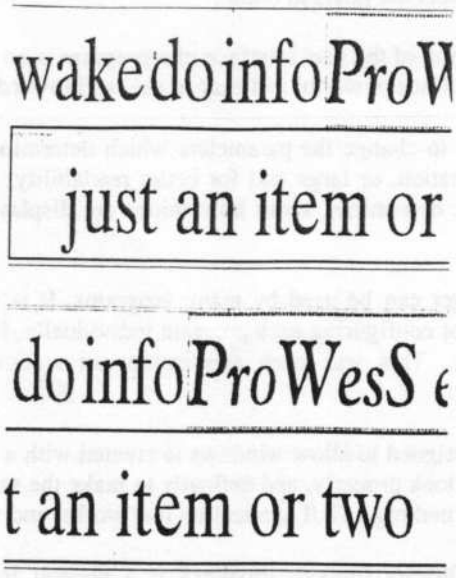






Of course the possibility that the size of all items in the window can be increased, has the possible effect that the window no longer fits on the screen. ProWesS will fix this by making the window as large as possible, and the user can scroll the visible part of the window by pressing <control shift alt cursor key>. We have included a screen dump of a window which is completely visible, and then the same window with much bigger fonts, when it is started and after scrolling it a bit.





Although ProWesS is a new window manager, it does not interfere with the Qjump "wman" window manager. It is quite possible to run applications which use wman and ProWesS together. This assures that you can still use all your "old" programs, and run ProWesS and newer applications at the same time. To demonstrate this we include a screen with some ProWesS jobs on it. It still contains the button frame with Qpac2 software etc. It also contains

a sleeping ProWesS client. This screen which is at approximately the same resolution as the forthcoming MasterPiece card, also shows the use of larger fonts.

--- A programmers point of view ---

ProWesS is designed with a few specific goals in mind :

- Ease of programming. The creation of the user interface of a program is an important task. However, the efforts should go towards making the interface powerful and easy to use, and towards the coding.

- Configurable. It should be easy to change the parameters which determine what a program looks like. If you prefer small text for more information, or large text for better readability, that should be easily configured. In essence, many parameters can be determined about how things are displayed. It should be possible to change these.

- Consistency. A window manager can be used by many programs. It is preferable if all these programs are somewhat consistent. So instead of configuring each program individually, it would be better to have the general parameters globally configurable. This way each application automatically fits in with the rest, and the programmer is not burdened with it.

- Fast prototyping. ProWesS is designed to allow windows to created with a limited amount of work. Some extra effort may be required to make it look properly, and definatly to make the scaling work as intended. So ProWesS allows you to first concentrate on making a GUI application that works, and worry about the details later.

- Screen independence and PROforma support. ProWesS is a general framework which has been designed specifically to allow the use of PROforma for all drawing. This way all the text on your screen can be drawn with the font and size of your choice. Because ProWesS uses PROforma for the drawing, it is possible to have windows which are larger than the screen, and also screen independence. When using a high resolution monitor, the fonts will still be as big as on a screen with less resolution.

- Reentrant code. It should be possible to write reentrant programs using ProWesS. Reentrant code can be executed many times with only one copy in memory. This means that a mechanism for accessing global data has to be provided.

ProWesS makes programming as easy as possible by making sure that the application programmer doesn't have to worry about such details as making sure that (part of) the window should be redrawn, or that the window should be rebuilt completely. Also some operations are made easier because they are built in, like moving and scaling, sleep etc.

To demonstrate all this, I hereby give the source for two small programs to demonstrate. The first program is a window which contains a scrollable application window which can display something (a piece of big text in this case). The program can be seen in action in the previous screen dump ("ProWesS twelve test"). ProWesS is completely controlled with seven functions, of which the last two are less important and will not be discussed here.

=== listing ===

```
Error PWCreate(PWObject owner, PWObject *ret, PWType type, ...);
Error PWChange(PWObject object, ...);
Error PWQuery(PWObject object, int what, void *ret);
Error PWActivate(PWObject object);
Error PWRemove(PWObject object);
Error PWDoChange(PWObject object, int *taglist);
Error PWAddType(PWTypeDef *newtype);
```

=== end listing ===

PWCreate is used to create an object in a window. The object is put inside the same window as the parent. If the parent is NULL, a new window is created. You can also pass a list of tags which set some parameters about the behaviour of the object.

PWChange is used to change some parameters of an object. In fact a call to PWChange is implicit when an object is created. However, some tags are only interpreted when an object is created.

PWQuery can be used to inquire an object about simple values. For some more complex queries you will have to use the PWChange function.

Objects can removed with the PWRemove function. This will also remove all objects inside, and the window if it no longer contains any objects.

Activating an object will display the window which contains that object and wait for any events in that window.

So if we want to write a small application, we have to start by creating the objects in it.

=== listing ===

```
#include "sms_h"
#include "win_h"
#include "ProWesS_h"

void init()
{
  PWObject outl;

  LinkPROforma();          /* get a DLL link to PROforma */
```

```
  PWCreate(NULL, &outl, PW_TYPE_OUTLINE,
        PW_OUTLINE_SLEEP_TEXT, "PROforma applic test",
        PW_OUTLINE_QUIT,
        NULL);

  PWCreate(outl, NULL, PW_TYPE_APPLIC,
        PW_APPLIC_CANVAS_LIST,
          PW_CANVAS_SIZE_PIX, 100,40,
          PW_CANVAS_ACTION_REDRAW, &redraw,
          PW_CANVAS_POINTER, SPRITE_HAND,
          NULL,
        PW_APPLIC_SCROLLBAR_Y,
        PW_APPLIC_YSCROLL_LIST,
          PW_SCROLL_MINDIST, short2pt(20),
          PW_SCROLL_MAXDIST, -short2pt(20),
          PW_SCROLL_MAXIMUM, YMAX,
          NULL,
        PW_APPLIC_SCROLLBAR_X,
        PW_APPLIC_XSCROLL_LIST,
          PW_SCROLL_MINDIST, short2pt(20),
          PW_SCROLL_MAXDIST, -short2pt(20),
          PW_SCROLL_MAXIMUM, XMAX,
          NULL,
        NULL);

  PWActivate(outl);
}
```

=== end listing ===

The first call to PWCreate will create and "outline" object, which is the title bar for the application. The title defaults to the job name, so we don't have to worry about that. We then make sure the application can be put asleep, and give the text which should be displayed when the program is sleeping (the "PW_OUTLINE_SLEEP_TEXT" tag with one parameter, the text).

The "PW_OUTLINE_QUIT" tag makes sure that there is also a quit item. The NULL terminates the list of tags. If we want confirmation request when quitting the program, we could have included the "PW_OUTLINE_QUIT_CONFIRM" tag which needs a boolean parameter.

Then the application window is created. An application window is in fact a composite object, built from a canvas (which displays the info) and scrollbars. Therefore the window is instructed that is should contain a scrollbar in each direction, and lists of tags are passed on to the underlying objects. These lists specify the size of the canvas (in pixels in this case), how to draw the window, and the pointer which should be used inside the window. The scrollbars are passed the distances for scrolling (MINDIST for a "hit", MAXDIST for a "do" on the scroll arrow, the negative value indicates canvas "size+distance"). Then the maximum value for the scroll is passed (the minimum defaults to zero).

All that remains to be done is writing the routine to draw the canvas.

=== listing ===

```
#define FONT "English 157"
#define STRING FONT
#define SIZE short2pt(100)
#define XMAX short2pt(500)
#define YMAX SIZE*2
```

```
Error redraw(PWObject object, CanvasInfo *rinfo)
{
  int i,j,siz;
  Gstate gid=rinfo->gstate;

  /* set colour for drawing and clear "window" */
  PFPaperColourRGB(gid,p100,p100,p100);
  PFColourRGB(gid,0,0,0);
  PFClearPage(gid);          /* clear background */

  /* adjust page origin to reflect position in applic */
  PFSetPageOrigin(gid,rinfo->xorg,rinfo->yorg);

  /* draw the contents (just some text) */
  PFLoadFont(gid,FONT);
  PFScaleFont(gid,SIZE);
  PFMoveTo(gid,short2pt(10),SIZE);
  PFShowString(gid,STRING);
}
```

=== end listing ===

This is a relatively straightforward piece of code which just prints the name of a font (using the same font). The page origin is set to reflect that the window may have been scrolled. The gstate is automatically set to the area of the canvas with (0,0) as coordinate at the top left in the canvas.

As a second example we show a little program which demonstrates the support for dynamic windows and for reentrant code. The window looks as in the following screen, which displays the program three times, before anything is done (left), after twice editing the text and indicating "do" (right), and during editing of some text which doesn't fit inside the item (bottom).

=== listing ===

```
#include "mem_h"

#include "ProWesS_h"

#define MAXLEN 50

void init()
{
  PWObject obj,it1;

  PWCreate(NULL,&obj,PW_TYPE_OUTLINE,
        PW_OUTLINE_SLEEP,
        PW_OUTLINE_QUIT,
        PW_OUTLINE_DO_ACTION, &newitem,
        NULL);
  PWCreate(obj,&it1,PW_TYPE_EDLINE,
        PW_EDLINE_SET, "type text here",
        PW_EDLINE_MAXLENGTH, MAXLEN,
        NULL);
  PWChange(obj,PW_GLOBAL_AUXILIARY,it1,NULL);
  PWActivate(obj);
}
```

=== end listing ===

Again we start by creating an outline which contains a sleep and quit item (the sleep button will now contain the job name as text). It will also contain a "do" item. When "do" is indicated or a "do" is generated somewhere in the window the "new item" event handler will be called.

Also the item to edit a line of text is added. The text inside the item is set, and the maximum length of the text is also set (this is an example of a creation tag).

To make sure that no global variables are needed, the data which is needed by the event handler routine is put in a global auxiliary variable. In ProWesS each object and the window (global) have an int/long sized global variable. This can be used to store e.g. pointers to global data structures.

=== listing ===

```
Error new item(PWObject object)
{
  PWObject edline;
  char *str;
  PWQuery(object,PW_GLOBAL_AUXILIARY,&edline);
  MEMAllocate(MAXLEN,&str);
  PWChange(edline,PW_EDLINE_GET,MAXLEN,str,NULL);
  return PWCreate(edline,NULL,PW_TYPE_LOOSE_ITEM,
                  PW_LOOSE_TEXT, str,
                  PW_POSITION_BELOW, edline,
                  NULL);
}
```

=== end listing ===

To start, we need to get the object id of the edline object, so we can get the string from it. Then some memory is allocated, the loose items just copy the pointer to the contents, so using a local variable won't work. The the string is copied into the allocated memory. Because we have to pass the buffer size, PWQuery can't be used, so it is handled by PWChange. The actual work is done in the call to PWCreate. A new item with the text from the edline is created. It is positioned below the edline object (thus above previously added objects).

This also shows that ProWesS never explicitly works with coordinates. In some cases the size of the object has to be given, but the position is determined either by default rules, or by positioning it above, below, left or right of another object.

--- ProWesS - the package ---

What we have been discussing so far, is the actual window manager. However, ProWesS will not be sold on it's own. In the greater scheme of things, ProWesS is just a small part of a much larger project, it is however the most important bit. We had the feeling that the programming libraries on the QL were not as good as they could be, and wanted to do something about that. However, this was too big a project to do just like that (the QL market being what it is). After some discussions, a third party seemed interested, so we started working.

The complete package should include many extensions : ProWesS itself, but also PROforma (as it is used to build your windows), the DATAdesign engine (for comfort and because it may be used for some housekeeping tasks), the DLL manager (a system to allow libraries to be loaded once as resident extensions and used by many programs, but more efficient than using things), syslib (the system library for accessing the OS from the applications).

Apart from these extensions some small programs will also be provided. The most important of these will start new programs. A typical problem we currently have on the QL is that the less advanced users are not capable of writing boot files. Therefore, they can never experience the advantages of multitasking. Our solution will be a program to execute programs. This will automatically extend the system to make sure the application can be

executed without problems. This could involve such things as extending the window manager, loading extra resident extensions (libraries?), adding extra device drivers or fonts to PROforma. This should also make the installation of programs on harddisk easy, just copying the program disk in a separate directory will be sufficient.

Another major part of ProWesS will be the help system. It will allow all application programmers to easily create very extensive online help. In fact it should be so good that printed manuals are no longer necessary. The idea is that all information about how to use a program can be found on your computer. This will allow application developers to supply software without a printed manual. This will strongly reduce production costs (printing manuals is expensive) and postage, which should result in cheaper software. Manuals will always be up to date, as there is no remaining stock when the manual is updated. It is also better for the environment, as no paper is wasted. You will still be able to print your manual, so that you can have hardcopy if you need it. Many of us don't have the heart to try and read the entire manual, so having it online should help - you can easily get the help when you need it.

You may have figured out by now that ProWesS will in fact be a support package. It will not do much itself, but will be essential for some applications. This will result in an extra cost for your first application which needs it, but will also make the individual applications cheaper. The producers don't have to pay royalties for any of the extensions, and don't even have to supply it. As long as the user owns ProWesS, all works without troubles. The application programmers have the advantage that they know that a certain base system is there, including fonts etc.

--- minor and/or major problems ---

ProWesS is truly event driven, meaning that the system is either waiting for, or processing an event. The window only exists during these phases, it is drawn when control is handed to ProWesS, and removed when control is passed back to the application. It may in some cases be necessary to generate events from another job. Unfortunately, this requires an extension to the operating system. Fortunately, Tony Tebby still polishes Qdos, and the required extensions should be included in a future version of the Pointer Interface ('ptr_gen'). This will probably be solved by the time you read this.

More annoying is that ProWesS (in fact the DLL Manager) is currently not compatible with Minerva. Some things have to be done in supervisor mode for safety reasons. However, the amount of usable space on the supervisor stack is rather small, too small for running c code. Unfortunately, increasing the size of the supervisor stack on Minerva seems not to work. I have contacted the authors of Minerva to help find a solution, and hope this will also be fixed soon.

What is more annoying for some is that is will be very hard (or even impossible) to write programs which use ProWesS in SuperBasic. As ProWesS is truly event driven, events are reacted upon by either default actions or event handler routines. However, calling SuperBasic functions or procedures from non-Superbasic extensions is a problem (to put it mildly).

As you should see from what has been discussed so far, we are very ambitious for the ProWesS package. It will need a lot of coding, testing and manuals (especially the programming manual). We have already done a lot of the groundwork, but we are still along way from home. We will try to release ProWesS at the end of the year, or beginning of next year.

All things considered, we believe in this project and consider it to be a step forward for the QL community. However, this can only be a success if it is also supported by other programmers who write their applications inside this environment !

(Editor's Note: Watch for the release of ProWeS and additional new software from the PROGS. You'll read about it first in IQLR.)

Easy NETworking

Yate, Bristol, ENGLAND - Stuart Honeyball

Amongst the QL fraternity there are a lot of users about with more than one QL or QXL who have never considered connecting them together. Why not? It really is very simple, I promise you.

The built-in network was one of the major features which set the QL apart from the dross. It allows any network station (i.e. a QL or QXL) to access the devices of any other station thus providing, for example, a means of sharing a hard disk or printer, enabling messages to be sent around, transferring software from a QL to a QXL, etc..

To get started the first thing you need to do is to connect the NET ports together using the lead that came with the QL when you first got it. If you do not have this lead then an audio cable terminated at each end with a mono 3.5mm jack plug will do fine. These are usually available in high street electronics shops. To connect 2 stations together simply plug one end of the cable into one of the NET ports on one station and the other end into a NET port on the other station. On the QL each port is marked with the word "NET". It does not matter which one you use since they are both connected together. On the QXL the NET ports are not marked but are the sockets in the mounting bracket accessible from outside the PC. To connect a third station connect one end of another lead to the spare port of either station on the current set-up and the other end to either port on the third station. To connect a fourth simply connect the new station to either end of the existing network. As you can see there will always be a spare port at each end of the network.

The sockets used for the network connectors have a switching system in them that is wired so that each end of the network is resistively terminated. For this reason you should not have anything plugged into the network "ends". In other words, if you unplug a cable from one station then always unplug the other end of the cable or you will probably find that the network will turn into a notwork! Connecting and disconnecting to or from the network with the power switched on is perfectly OK.

QL systems must have Tony Tebby's Toolkit II installed on ROM so if your QL is fitted with a TRUMP CARD, GOLD CARD or SUPER GOLD CARD then you already have it. If not then you may need to plug in the Toolkit II ROM cartridge. On QXL systems you need do nothing since the necessary software is loaded in as part of SMSQ.

A 2 Station System - I will now assume that you have connected just 2 stations together. This is obviously the simplest set-up to start with. Firstly choose which station will be the local one then go over the remote one and type in the command:

FSERVE - followed by pressing the Enter key, of course. This will start a task on the remote station which makes it a file server. You may never need to touch the remote station again although, if you did, you would not see any difference between it and an ordinary QL/QXL.

Now return to the local station. You can now access all the devices on the remote system simply by prefixing their names with "N1_". For example, make sure there is a disk in "Flp1_" on the remote station and from the local station enter:

DIR "N1_Flp1_" and you should get a directory on your display of that disk.

If instead nothing happens followed by the message "net aborted" then it may well be that there is a poor connection with the QL NET port. Pull out the plug and put it in the other port and try again. If it still doesn't work then wiggle the plug about a bit and try again.

As an aside, we did find during the QXL development that the QL NET sockets were not 100% compatible with the supplied cable. Further investigation revealed that mono 3.5mm connectors come in a widely varying array of types. The sizes and positions of the dimple and insulating ring can vary so much that some combinations of plug and socket are completely incompatible. On the QXL you should have no problem since we chose a good quality socket able to cope with all the plugs we could find.

There were, unfortunately, a few QLs made in the early days that actually had some of the network circuitry missing so there's not much hope there. Another possibility for a QL NET port not working can be that the driver transistor has blown. This can be rectified by TF services. In my experience the vast majority of QLs have working NET ports. No QXL NET port failures have been reported.

Anyway, back to using the network. To copy the files in the root directory of a floppy disk in the local station's "Flp1_" to a sub-directory called "Sub1_" on the remote's "Win1_" simply enter (you must have already entered TK2_EXT):

```
WCOPY "Flp1_" TO "N1_Win1_Sub1_"
```

To execute "Xchange" from the remote stations hard disk enter:

```
EXEC "N1_Win1_Xchange"
```

and say you go into Quill, load a document and then want to print it using a printer plugged into the remote station's "Par" (parallel printer port) then type in the usual F3, "p", Enter, Enter, but before tapping the 3rd Enter insert the following:

```
_N1_Par
```

Xchange is a bit strange in requiring that extra initial underscore. If you leave it out then it prints to a file created with the name "N1_Par" on the local station. This was checked out with the public domain version (V3.90I) of Xchange modified by Erling Jacobsen available from Qubbesoft.

If there is someone working on the remote station (the file server) then using the screen device "Scr" you can annoy them no end by entering the following lines (you must have Toolkit II enabled for this):

```
Ch%=FOPEN("N1_Scr")
PRINT #Ch%,"You silly old fool!"
CLOSE #Ch%
```

This sort of thing can be very difficult to resist and is a major reason for networks being dismantled.

Three or more Stations - If you have just one file server then communication is possible only between each station and the file server just as though there were only 2 stations from the point of view of each of the non file server stations.

If you want more that one file server then you must assign a different number to each one. This, incidentally, applies to the 2 station case as well. The station number must be set prior to starting the file server task. So on the first file server enter the lines:

```
NET 1
FSERVE
```

and on the second enter:

```
NET 2
FSERVE
```

and so on.

Once you are sure you know what you're doing it is best to put these pairs of lines at the start of the appropriate "Boot" files.

e.g. If you are working at a station other than NETs 1 or 2 then you could copy a file "Junk" from NET 1's RAM disk to NET 2's serial port by entering:

```
COPY "N1_Ram1_Junk" to "N2_Ser1"
```

Easy NETworking - (cont'd)

Problems with the NETwork - Anybody working at a file server will notice a considerable slow down in the computer response time when someone else is accessing the file server's devices. This may not be quite as irritating as seeing rude messages appear on your screen but can be enough to justify having a dedicated file server possibly connected to a shared hard disk and printer.

There is currently a problem when 2 file servers are trying to access each other simultaneously and that is a common computing problem called "deadly embrace". What happens is that A tries to access B and finds that B is doing something else and so waits for B to finish. What B is actually doing is trying to access A and seeing that A is busy waits for it to finish. Both A and B have started their mutual access and both are waiting for each other to finish before continuing. This only occurs if both accesses start at about the same time but if it happens it locks up the network. The only solution is to prevent it happening in the first place, the easiest way is to have just one file server but more ambitious methods are possible. The real solution is to persuade Tony Tebby to put the network driver code right. It is a bit unfortunate but it is best to avoid using the "DEV" device over the network.

Other problems tend to be of an electrical nature particularly with regard to the integrity of the connections. As stated earlier, a bit of twiddling about with the QL NET plug can often revive intermittent networks.

Conclusion - The network is a very useful facility and shows just how devices on a QL system, whether they be directory devices like disk drives, input/output devices like serial or parallel ports, virtual devices like pipes, or even devices on a remote computer, are all accessed in a similar way. Having met a lot of QL users I know that there are several businesses out there where QLs are used but are not yet networked together. By connecting the QLs together they could have common access to commercial data rather than having to move the data about on floppy disk and have an instantly updated and more efficient system as a result.

So, if your QLs can't yet talk to each other then now's the time to get connected!

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- Simple fitting
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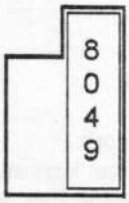
This interface is so straight forward there is not much to tell you. It simply fits under your 8049. For an idea of the size, look at the sketch!



A lead with a standard 5 pin DIN socket is connected to the PCB that can be led outside the QL for straight forward connection of the keyboard.

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QL-PC fileserver II has finally been released and is stuffed with new features. The new program suite costs just £35.00. An incredible offer to version 1 users is the option to upgrade to version 2 for *only* £7.00 (+p&p) upon return of the old master discs!

Original Features retained

- ⇒ Connection to the PC's DOS Drives (including networks and CD ROM's)
- ⇒ Optional automatic conversion of Text Files for editing by either machine
- ⇒ DOS sub directory handling
- ⇒ DOS Read/Write attribute handling
- ⇒ Automatic recognition of native QL files (allows QL programs to be Exec'd etc. from DOS drives)
- ⇒ Works in background on QL & PC.

New/upgraded features

- ⇒ Access DOS devices, e.g., LPT Ports, Keyboard etc.
- ⇒ Remote SCR and CON type text screen operation on PC display with colour, window and mode support
- ⇒ Up to 8 display screens on the PC can be operational and easily switched between from the QL.
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- ⇒ Advanced RS232 Comms handler for PC implemented as a DOS Device Driver (similar to QL SER device drivers).
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Product Details From

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Windows Icon's and the QXL

Yate, Bristol, ENGLAND - Stuart Honeyball

Those of you who have a PC with Windows installed may have noticed that switching between Windows programs and DOS programs can cause the PC to crash. This could hardly be called normal but is quite common. Part of the QXL software runs as a DOS program and so can suffer from this. The fix is to create a PIF and call the SMSQ environment from a Windows icon.

To create a suitable PIF follow these instructions. They assume that the QXL software is a file called "SMSQ.EXE" in a sub-directory called "QXL". We will actually set up 2 icons: one to commence SMSQ (as though you had entered "SMSQ") and the other to resume it (as though you had entered "SMSQ/").

1) Go into Windows and double click on the "PIF Editor" icon, usually found in the "Main" window, to start the "PIF Editor".

2) Fill in the fields on the "PIF Editor (Untitled)" window as follows:

Program Filename:	SMSQ.EXE
Window Title:	SMSQ Commence
Optional Parameters:	[leave blank]
Start-up Directory:	\QXL
Video Memory:	High Graphics
Memory Requirement:	[leave as it is]
EMS Memory:	[leave as it is]
XMX Memory:	[leave as it is]
Display Usage:	Full Screen
Execution:	Exclusive
Close Window on Exit:	[yes]

Now click on the "Advanced..." button and you should be presented with another window entitled "Advanced Options". Fill in the field on the window as follows:

Multitasking Options:	[leave as they are]
Memory Options:	[leave as they are]
Display Options:	High Graphics Retain Video Memory
Other Options:	[reserve ALL shortcut keys and leave the other items as they are]

The "Advanced Options" form is now filled in and so click on the "OK" button to go back to the previous window. The new PIF should now be saved. To do this, click of the "File" heading in the "PIF Editor - (Untitled)" window to give the "File" menu. On this menu click on "Save as". Set the name of the file to be "SMSQcom.PIF" (without the quotes) and click on "OK".

We have just created a PIF for commencing QXL operation. Before we leave the "PIF Editor" we'll edit the PIF to create the one for resuming QXL operation. For this we need to edit just 2 of the fields. Change the fields to read:

Window Title:	SMSQ Resume
Optional Parameters:	/

Now click on "File" then click on "Save as" and use the name "SMSQres.PIF" (without the quotes, of course). The "PIF Editor" is no longer required so double click on the "-" at the top left of the "PIF Editor" window to close it. We've now got the PIFs created so it's time to assign them to icons and this is where things start to get tricky.

You now need to have both the "File Manager" and the "Applications" windows on the screen together. To do this, firstly grab the title bar of the "Applications" window and drag it up to the top of the screen. Now double

Windows Icon's and the QXL - (cont'd)

click on the "File Manager" icon and you should see the "File Manager" window open. Grab he "File Manager" top border (not the title bar) and move the border down so that at least some of the "Application" window becomes visible. You should now be able to see both the whole of the "File Manager" window and at least some of the "Applications" window.

You now have to locate the PIFs you've created in the list of files in the "File Manager" window. Firstly, make sure you're in the correct sub-directory by looking in the left hand portion of the "File Manager" window. If the "windows" sub-directory is not highlighted then click on it to make it so. Now look in the right hand portion and locate the file name "smsqcom.pif". Drag this item from the "File MMnager" window to the the "Applications" window and drop it there. Now do the same for the "smsqres.pif" file.

The "Application" window now has 2 new icons both of which are the "MSDOS" icon. We now need to finish them off. To do this click once on the one subtitled "Smsqcom", then click on the "Program Manager" "File" to yield a menu, then click on "Properties" from this menu. Innthe properties menu change 2 of the fields as follows:

Description:	SMSQ Commence
Working Directory:	C:\QXL

Now click on the "Change Icon..." button. Windows may tell you there are none for this and ask you if you wish to choose an icon from the "Program Manager". Click on "OK". Now locate the closed door icon and click on it then click on "OK" anddyou should be returned to the "Program Item Properties" window with the new icon displayed. Click on the "OK" button and the "SMSQ Commence" icon is ready for use!

Do a similar thing for "Smsqres" with the minor difference that you set:

Description:	SMSQ Resume

and choose the open door icon.

From now on you can start the QXL by double clicking on the "SMSQ Commence" icon and if you leave SMSQ by Ctrl-ScrollLock you can go back to where you left off by double clicking on the "SMSQ Resume" icon. On the PC I have, the speed of operation is appreciably slower under Windows. In my opinion Windows looks pretty but doesn't really offer much.

A Brief Note

Newport, Rhode Island, USA - Bob Dyl

As you can see by the size of this issue IQLR has had to cut back in the number of pages per issue. Not for the lack of material, but due to the 72% increase in the cost of paper since the turn of the year and the increased rate of postage both here and abroad. We DO NOT want to increase the cost of IQLR hence the decreased number of pages.

A number of readers have suggested that we shrink down to a Quanta size (A5) magazine but with no decrease in the number of pages - each issue being around 70 pages). The savings are obvious and we would be able to maintain our current subscription rates through Volume 6. WHAT DO YOU THINK ?? As IQLR is YOUR magazine, we'll follow the path our readers suggest. Let us hear about YOUR choice.

You may have also noted a down grade in the quality of printing and lack of pictures in this issue. We had to delay this issue for a couple of adverts and a very important article. The result was that we lost our printing window with our printer. To get this issue out on time, it was necessary to use an alternate printing house that does not have the quality of equipment that we normally use. My apologies.

DeskJet 320 Printer - A REVIEW

Tal-y-bont, Bangor, WALES - Dilwyn Jones

The Deskjet 320 is one of a line of low cost inkjet printers from Hewlett Packard. The printer is designed for mobile computing on the PC, but it can be used with a QL too (in fact, I only use it on the QL!).

Aesthetically, the printer is very good. At last an equipment manufacturer has conceded that black can be a nice colour for a computer - the printer and sheet feeder are all black with six grey buttons on the front panel.

It comes in a large box, given the size of the printer itself. I purchased it with the optional sheet feeder - it is a bit laborious to use without it, but the sheet feeder adds greatly to its size. The sheet feeder does not hold a large number of sheets of paper, but is adequate for personal use. A4 or American Letter size cut paper can be used. Used without the sheet feeder, the printer stands upright on two small plastic supports. Used with the sheet feeder, the printer leans forward at 45 degrees, with the feed tray backwards at 45 degrees. The feel of the whole assembly is rather plasticky and I do not get the impression that the whole assembly would stand up to heavy use, though you do have to remember that for the low price at which you can buy this printer, it may not be reasonable to expect too much.

The plastic arms which support the paper in the tray do not inspire much confidence, for example. There is no paper out tray on the sheet feeder - the paper feeds through the printer on a fairly flat path and comes out onto two flimsy sprung arms on the front - the paper falls on the floor as soon as the next sheet feeds through. Without the sheet feeder, you simply hand feed individual sheets print side up through the back and catch it as it comes out the front. OK for light, mobile use where only the occasional sheet is printed, but for home use the sheet feeder is essential. The sheet feeder occupies a footprint just slightly larger than an A4 sheet of paper, the printer itself being about 5 to 6 inches tall. The printer just slots into the sheet feeder, no complex attachment instructions, but be careful with the paper catching handles on the front when opening the door to insert the cartridge, as I managed to make mine spring off and spent about half an hour trying to find the tiny spring in the carpet on the floor!

The printer itself can be operated by a rechargeable battery (an option I did not purchase, so cannot comment on battery life) or with a rather large mains adaptor which plugs into the right hand side of the printer. Below this is the Centronics parallel printer socket, allowing you to plug in a parallel printer cable (e.g. as supplied with the Super Gold Card) or a serial converter such as the Miracle unit.

The printer takes a standard HP Deskjet single capacity black cartridge, but cannot accept the high capacity versions for some reason. A colour kit consisting of a cartridge holder and colour cartridge is available, though I have not used this. In hardware terms, the colour upgrade involves only changing the cartridge. Unfortunately, there are no programming details apart from a PC disk containing some Windows printer drivers. This is true of the basic printer too - the manual shows how to connect it all up, but has no programming information whatsoever, so you have to rely on currently available printer drivers or write your own if you have access to the necessary information, e.g. with a separate programmer's reference manual from HP, at extra cost. Basically, the printer responds to HP PCL level 3 control commands.

There are no DIP switches to set in the conventional sense. But there is an electronic switch setting which consists of pressing buttons on the front panel which make the print cartridge move to certain positions inside the printer so that an arrow on the cartridge carrier points to written settings inside the printer. This is not too difficult to operate once you get used to it, but luckily it is a once and for all setting - you rarely need to adjust the settings more than once. It remembers the settings while the power is switched off of course. The snag is that there is no visual indication of the settings as there are with conventional DIP switches, you have to tell the printer to print a report using one of the self test options.

In use, the printer is relatively fast and quiet and convenient to use. It has a wide range of fonts and text sizes from 8 points to 14 points for the proportional spaced fonts (CGT Times, a serifed font, and Univers, a sans serif font). These fonts are not available in fixed pitch modes, which make them rather awkward to use from Quill, for example. Fitched pitch fonts consist of Courier 5, 10, 16.67 and 20 characters per inch, while Letter Gothic is available in 6, 12 and 24 characters per inch. Italics are available on most fonts, bold on some, although the bold

font is often a separate font rather than a computed variant of the same font as on older dot matrix printers, so not all sizes or font varieties can have features such as bold.

Courier 10, 16.67 and 20 characters per inch and Letter Gothic 12 and 16.67 characters per inch are available as landscape fonts (i.e. they can print sideways along the length of the paper, useful for printing wide spreadsheets, for example).

Text 87 users can use the Deskjet 510 driver in Typeset 94-Deskjet at the time of writing. Perhaps Fred Toussi will release a pure Deskjet 320 driver in due course, though the Deskjet 510 driver appears to manage most of the facilities with only a few slightly misnamed fonts in the list (e.g. GST Roman instead of CGT Times).

The printer's price is around £170 + V.A.T. here in the U.K. with a special bundle offer with the sheet feeder available from some suppliers for 15 to 20 pounds more. HP's on site maintenance contracts are available for around an extra 3 years, offering 3 years of worry free printing! The battery pack will set you back a further 30 pounds or so. Watford Electronics can supply a carrying case for this printer if used mobile.

The basic printer is quite cheap, but the price soon mounts if you buy all the accessories. I recommend this printer for light domestic or mobile use, but not for heavy office use where a desktop version of the Deskjet family would be better. The printer looks good, there is little to go wrong and despite its rather fragile feel, has been a trusty little workhorse for me for a few months now and I am quite happy with it. It takes up little room, prints fast enough for me, has typically good quality inkjet printing, it looks good next to the QL and I have been quite happy with it.

TF SERVICES

superHermes

Hermes co-processor solved the major problems of the QL co-processor. **superHermes** does this and adds the following, all on a quality circuit board not much larger than the original 8049:

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- Keylock connector - to lock IBM/QL keyboard and mouse
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- Plug connectors on pcb for all relevant features

All this is made possible by the high speed RISC co-processor (PIC 17C42)

Fitting is a simple job - simply remove the top of the QL (8 screws) & replace the IC marked '8049' or Hermes next to mdv1. Can be fitted to bare boards & is especially suitable for QL boards in IBM PC style cases. QL control software is provided.

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CDROM on a QXL

Newport, Michigan, USA - Dennis Donahue

How I did it.....

But first a little history. Before my life as a computer tech head started, I had a distrust of computers. Those things that could file everyones life into a Big Goverment data base. Then I was introduced to a TS1000 and I thought " How could this little black box be so evil? Look it even plays games." Being a mechanic, I like gagets and I need to know how they work but as I learned the ins and outs of of it the desire for more power began. I wanted color and sound and no more ram packs.

The answer was the TS2068, a great computer, but those cassette tapes are just too slow. I wanted speed. So I purchaced an AERCO dual disk drive system at the first Midwest Sinclair Computerfest in Dayton, Ohio. No it wasn't quite Plug n Play because I had to convert all my programs to disk format. So with all I had learned so far and help from my friends including Keith Watson, Steve Spaulding and David Hill, I was feeling pretty successful.

But was I ready for the Quantum Leap? Yes!! the QL had a more powerfull programming language and I could still use my RGB monitor and printer but I lost speed without disk drives. A Trump Card and two 5 1/4 quad drives had me happy again. So now what can I do with all this power?

Well by now I had heard of other languages and an MSDOS emulator for the QL but shopping around I found that I could get an XT for nearly the same price.

So it was the power of the QL to emulate other computers that lead me to those computers and now with another emulator I have returned. The ultimate emulator is the QXL with the SMSQ operating system. With them the power and speed of the QL is comparable with current alternatives and has access to the latest hardware. Which brings me to the point of this story.

The CDROM.

Now with the desire to have all of my systems in one box and the QXL card installed I began relearning QDOS (SMSQ) and rediscovering the fun of my early experiences. I had realized power and speed with the QXL and Hard Disks. I noticed that when I selected a files directory of win5_ the CDROM light would come on but returned a "no medium" message. What was it looking for? A QXL_WIN file? How can I find out?

After contacting a company about having a CDROM disk made I began building a 50 MEG QXL_WIN file with every QL program I could find, mostly in zip format. Being a QUANTA member and also having just bought the DP collection and all my other files of old I had 50 MEG. But a CDROM holds 640 MEG so why waste the rest of the disk? So I began loading in other sinclair emulators and all the files I had downloaded from the BBS' over the years until now I had 200 MEG which I stored on tape backup and was ready to send it be recorded but I hesitated, I wasn't sure it would work, then the answer came in an advert for a CDROM recorder. Now I could do it myself and also record audio CD's from my hard disk recording system. Within one week of installing the SCSII-2 CD-R the disk was recorded, then read by the QXL! Yes programs can be run right from the disk just like a hard drive and now I have a backup of every QL and Z80 file on one disk.

It's been a long journey to get to this point but I feel that some how the QL will survive into the next century with support and loyalty of its users. People who like to do it ourselves without big corporations telling us what we want.

My next project is to scan my old Sinclair magazines and save to CDROM for a data base.

.....happy sinclairing.....DENNIS

(Editor's Note: If you are interested in having a CD made or have any questions about CDROM's and the QXL, Dennis can be contacted at Qbox-USA or thru IQLR.)

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CD_PLAYER_BAS

Oldbury, West Midlands, GREAT BRITAIN - Simon N Goodwin

The First SuperBasic CD Player

I was interested to read the discussion of tape backup and CD player control in volume 5 issue 2 of IQLR, on page 6, since I sorted this out on my 68040 based SuperQL in January, and all the necessary BASIC will appear in the next PD release of Amiga Qdos! At first I thought this was unlikely to be useful to other Qdos enthusiasts, but in view of recent interest in the QXL, the rebirth of the Amiga thanks to Escom, and the Mac Qdos emulator, there may be quite a few people with appropriate hardware to share my work.

You can select, play and pause tracks with single key-presses. The program also controls the CD-ROM drawer, so you can open and close the drive to change disks from SuperBASIC. The program supports all possible SCSI and SCSI 2 commands, so you can also check drive names and firmware versions, track and disc times, read audio or data sectors, and communicate with other SCSI devices - I've had it working with CD, DAT and a 1,920 Mb hard drive, and the same code will also suit direct SCSI links between computers, SCSI scanners and similar peripherals. All you need to do is put the correct command sequence in a Qdos string, and wait for the results.

The program handles all the 'phase changes' and communication between devices. Large transfers are obviously a bit slow by SCSI standards from SuperBASIC, even on a 33MHz 68040, but it works!

The original objective for this little hack was to let Qdos users play CD Audio tracks from a SCSI 2 CD-ROM drive. It communicates directly with the common NCR 53c710 SCSI controller, used on the Warp Engine, and can be converted for similar NCR/Zorro interfaces such as PP&S Zeus, CSA Magnum, Commodore 3091 or DKB A4091 - all it needs to know is the base address of the controller registers, which is set up in a variable by PROCedure SCSI_VARS, near the start of the program.

It has been tested with an Amiga 4000 with Warp Engine and a NEC Multispin 2x CD-ROM drive (firmware revision 2111.0). It should suit other CD drives as long as they have a SCSI interface, but not all drives support software eject and CD loading. If you try this, please let us know how you get on.

Since the program performs direct hardware access it falls into the category of a 'hack', and may need changes for other systems - but the NCR controllers are quite widely used, at least on prformance systems, and the same chip is used on some MAC and PC SCSI expanders. Others use its predecessor the 53C700, which has almost the same register set, and the 53C810 is a single-chip version for the PCI bus. It's almost exactly the same as the 53C710 except that bytes are in the Intel 'little-endian' order. You can sort this out by reference to the appropriate NCR hardware or programming manual. NCR have a toll-free support hotline in the USA, on 1-800 334-5454, and a bulletin board packed with interesting files on (USA) 719 596-1649.

The program looks for the CD drive at SCSI unit 1, and lets you specify an alternative unit (0..6) if it can't find a CD drive there. You can change the default by altering another assignment at the start of SCSI_VARS. If you have more than one CD drive (SCSI supports up to seven!) you can pick between them by changing the number. Unit 7 normally refers to the SCSI controller itself, as SCSI devices can communicate in any combination and the computer is not necessarily involved at all!

The SCSI specification is freely distributable and quite widely available, although some devices - particularly old SCSI-1 models - do not implement all the possible commands. The SCSI 2 specification number is X3.131-198X and there's a US Bulletin board dedicated to SCSI support on 719 574-0424.

Various SCSI operations require a delay before the next action. These are most efficiently handled with interrupt-driven machine code, but here its implemented with SuperBASIC delay loops that perform up to TIME iterations before giving up. You may need to adjust the value of TIME to suit your CD drive or Amiga set-up. If the value is too low you're likely to see 'Phase mismatch' error reports at the bottom of the screen. This indicates that the SCSI 'Initiator' and 'Target' devices have got out of step. NCR_RESET will re-initialise the link and all connected devices.

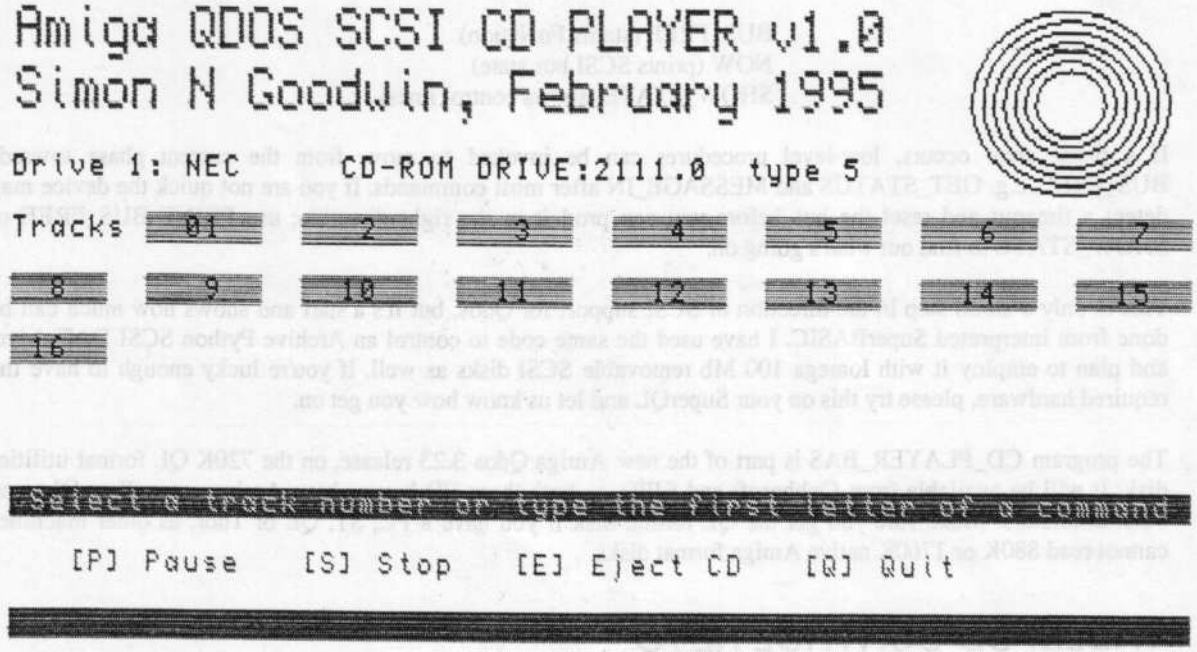
CD_PLAYER_BAS - (cont'd)

By default (DEBUGGING=0) the program displays a menu showing the CD tracks available. It reports 'track does not want to play' if you ask it to play a track that is not CD-Audio - usually this means data, at the start of most mixed-format disks. If you set the flag DEBUGGING=1 you get a messier but more informative scrolling display as each SCSI command is issued. This can be useful if you're tuning the program for a particular system.

If there is a disk in the drive the program selects it, waits for it to spin up, and reads the table of contents to find out how many tracks it has. You can also read other information, like track durations and even the bar code of the disk!

CD_PLAYER_BAS is entirely controlled from the keyboard, with the minimum of key-presses. Letter keys issue the commands shown in the table. Mouse fans could use the PTR__X%, PTR_Y% and PTR_BUTTON% functions to detect clicks and select the command or track that corresponds to the cursor position. These functions appear in Amiga Qdos and DIY Toolkit serial mouse code.

The commands available vary depending on the current state of the program and CD drive. If there is a disc in the drive you can select a particular track by typing its number; tracks are shown by numbered blocks on the screen, like a 'real' CD player's front panel.



For disks with up to nine tracks, all you need to type is the track number, with no need for ENTER. You may need to type two digits if there are more tracks to choose from - e.g. to distinguish track 1 from track 10. Single digits that could be ambiguous are shown with a leading zero, e.g. 01. This can be selected by pressing Zero then One, or One then Enter or Space, or just Zero if there are no more than 19 tracks. A cursor appears if an extra digit is required, and the program will not continue till the user enters a digit (to make a two-digit value) or Enter, Space or Escape.

If the control menu seems too simple, and you'd like more direct access, the program is structured as a collection of SuperBASIC commands which can be used directly if required. It is important to enter NCR_RESET at the

CD_PLAYER_BAS - (cont'd)

start of a session or the controller may generate unexpected interrupts which lock up the Qdos emulator when they are not cleared. Thereafter the drive can be controlled directly with commands such as:

CD_PAUSE
CD_CONTINUE
CD_EJECT
CD_PLAY <track>

Other commands will work with any specified SCSI unit - not just CD drives. These take one parameter, the SCSI unit number to be addressed:

REQUEST_SENSE
TEST_READY
DRIVE_ABORT
DRIVE_RESET
DRIVE_IDENT

These routines display informative messages if DEBUGGING=1. There are three more routines that summarise the current state of the SCSI bus:

BUS_FREE (status FuNction)
NOW (prints SCSI bus state)
SHOW_STATE (shows control lines)

If a phase error occurs, low-level procedures can be invoked to move from the current phase towards BUS_FREE, e.g. GET_STATUS and MESSAGE_IN after most commands. If you are not quick the device may detect a timeout and reset the bus before you can prod it in the right direction; use PRINT BUS_FREE or SHOW_STATE to find out what's going on.

This is only a small step in the direction of SCSI support for Qdos, but it's a start and shows how much can be done from interpreted SuperBASIC. I have used the same code to control an Archive Python SCSI DAT drive, and plan to employ it with Iomega 100 Mb removable SCSI disks as well. If you're lucky enough to have the required hardware, please try this on your SuperQL and let us know how you get on.

The program CD_PLAYER_BAS is part of the new Amiga Qdos 3.23 release, on the 720K QL format utilities disk. It will be available from Qubbesoft and SJPD, as both these PD houses have Amigas as well as QLs and other emulators. Make sure you get the QL format disk if you have a PC, ST, QL or Thor, as other machines cannot read 880K or 1760K native Amiga format disks.

TABLE: CD CONTROL KEYS

[S] Start replay from the first track ..OR..
[S] Stop playing audio and stop the CD motor
[P] Pause audio playback - leave the CD drive motor running
[C] Continue playing from the position reached before a pause
[E] Eject the disc currently in the CD drive
[N] Load the disc (if ejected) and read its table of contents
[Q] Quit to SuperBASIC, leaving the CD drive playing or idle

DIGIT Choose any track by number; usually no need to press ENTER.

(Editor's Note: Both of the articles that preceed this note show us that the world of CDROM's is not out of our reach. Our question is "NOT IF, BUT WHEN, WILL WE BE ABLE TO USE A CDROM WITH OUR QL".)

QXL Successor - QXL GOLD

For the reasons cited below Miracle Systems have decided not to manufacture another batch of QXLs. The last batch has been completely sold out and no additional QXLs can be supplied.

The main reason is the ever rising cost of parts. The components that contribute to most of the cost are the PCB, QXLGLUE chip, the Processor and Memory chips. The cost of each of these has risen since the launch of the QXL, so much so, that the cost roughly equals the selling price and threatens to surpass it. This is contrary to historic trends for semiconductor pricing.

Experience has shown that raising the price makes people feel that you are profiteering and puts a rather sour taste in their mouth so this is out of the question. As is common with rising prices the delivery times are lengthening. The 68EC040 processor is on a 16 week lead time and the memory is on an indefinite lead time.

Another reason is the European Union EMC Directive which takes effect on 01 January 1996. Every electrical item sold as new within the EU must pass a very stringent EMI radiation test. This is something like the FCC regulations test in the USA but much tougher. The EMC Directive has been implemented as criminal law and carries a maximum penalty of £40,000.00 plus 2 years in jail. The cost of entering a product is quite high and there is no guarantee that the QXL would pass.

So you can see that if the QXL was entered and passed the EMC test then Miracle Systems would have a loss making product and may not even be able to obtain all the necessary parts.

Incidentally, the above reasons also apply to the SUPER GOLD CARD. The last batch is currently being sold (we are able to hold our advertised prices for the remaining SUPER GOLD CARDS).

Make Virtue of Necessity

This combination of circumstances is an opportunity. Miracle Systems have decided to develop a simple product which will allow you to turn your GOLD CARD or SUPER GOLD CARD into a QXL Work-a-Like (requiring NO modification of your present GC or SGC). The new product will be called "QXL GOLD". It will plug into a PC's ISA slot just like the QXL did and have a QL style expansion connector onto which you plug your GOLD CARD or SUPER GOLD CARD.

The cost will be a £100.00 (£90.00 outside the EU) fully inclusive of VAT and postage. The EMC Directive means that this product may not be manufactured after the end of the year so we are taking orders now. Considering that QXL GOLD is not yet available, if you place an order now you may cancel it at any time before delivery.

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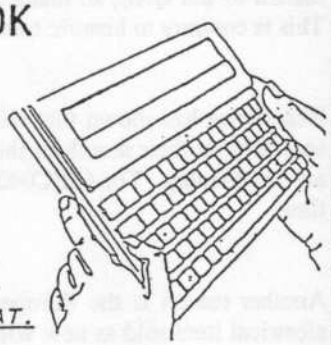

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WHY CAN'T I FIND THE CATCH IN ALL OF THIS?

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THE QL COLLECTION

A Scot's Visit to Oak Ridge

Glasgow, SCOTLAND - Giles Walker

After seeing details of the proposed 3rd North American QL Show in the March/April edition of IQLR, I started to make arrangements immediately; any delay would have ensured that some insuperable problem would arise or that time would slip by until it became too late to get organised.

The above mentioned copy of IQLR had a very pretty picture of Michelle Vaccha on the cover and I have no doubt that most of you thought that one so young couldn't really be using a QL yet. However George Gwilt, of the Scottish QL User Group, has exchanged letters with the young lady concerned and she was able to give him advice on certain problems that he had with a DP program. This correspondence I have seen with my own eyes. It is true that the spelling and handwriting left something to be desired but, all in all, it is probably better than my own.

Airline timetables contain much information, many of the better bits, such as what sort of aeroplane one might be travelling in, being tucked away in the small print. Why worry? Well, if the aircraft has two engines, when one stops it only has 50% of it's power remaining to get you from the middle of the Atlantic, where engines stop, to the nearest land. Starting off with three engines, the loss of one leaves two thirds of the original thrust available. Obviously twelve engines would be even better but this, in turn, raises problems of a different nature. Three is not a bad compromise.

The next consideration is how to get from the first port of landing to a convenient airfield to Oak Ridge. This sector should ideally be flown in a jet for two reasons. Firstly they fly higher and secondly they don't have propellers. Propellers introduce yet more problems and are best avoided. I'm not suggesting that any of you who might possess a propeller driven aeroplane should remove them or, even worse. If it was designed that way, leave well alone.

Applying the above conditions to the timetable resulted in a DC10 flight to Atlanta followed by quick hop in a MD80 to Knoxville. This second bit was no mistake on my part. Although the MD80 has only two engines, at no time during a flight from Atlanta to Knoxville should one be over the middle of the Atlantic.

Having arrived at Knoxville on schedule, I duly paid $40 to the local limo company for the 'short 20 minute ride' to Oak Ridge. This seemed a bit excessive at the time but, the ambient temperature not being within bargaining range, the deal was struck and as the journey stretched on to 45 minutes it became better value as the miles rolled by.

Despite being tired, we both enjoyed the countyside and, as we approached Oak Ridge, it became apparent that nothing seemed to be very old and that everything was very clean and tidy. The 'clean and tidy' part was probably a contrast to the streets of Glasgow but the 'new' bit didn't sink in until the next day. Although I had never been to Tennessee before, somehow Oak Ridge seemed to have a familiar ring and finally I remembered the Manhattan project.

Not only is Oak Ridge clean and tidy, it also doesn't have any citizens crossing the street on foot, which is logical if everyone goes wherever in a car, however with the European invasion, which started with our arrival, all that changed. The locals seemed a bit bemused by the sudden appearance of jay walkers but they were very friendly about it all.

By the next morning the Super8 Motel had some more QLers from Germany, led by Jochen Mertz, and messrs. Honeyball, Firshman and Reeves from the U.K. The latter decided on bicycles as the preferred form of transport, although they had a hire car which they drove from J.F.K. These are not the sort of gents that the QL scene can spare, so I was glad that they gave up the bikes after Stuart came 'home' with one hand bandaged and the other with plasters, although he assured me that the accident happened when he was trying to improve the machine (Tony's?) rather than ride it.

Come the great day we sought out the church hall, reputed to be 'one block down the street', where the show was

A Scot's Visit to Oak Ridge - (cont'd)

due to take place. Most of my visits to the US of A have been to New York, Chicago, LA etc., where a block, is a block, is a block. Oak Ridge didn't appear to have any blocks but by that time I had decided that people who travel everywhere in cars don't have much sense of distance anyway; also, by that time, I had given in and hired a car to cross the street in safety.

Although I was only able to spend the morning at the show, - considering the possibility of a future event, it seemed politic not to be absent the whole day - it was fascinating to be able to talk to all the traders and wise people present. I invariably learn a lot at these events and this was no exception. A good variety of tempting stuff was on sale and I was duly tempted. No need to tell her about all that! Also to come my way was a prize in the Grand Draw, which turned out to be a copy of PROGS DATAdesign. Most welcome.

Remembering the instructions in the aforementioned March/April issue, we decided to stay a couple of extra days after the show and took the opportunity to explore the locality, thus using the car to travel along the road as well as across it. Lovely countryside but somewhat crowded at Dollywood, where some few million fellow beings had also decided to visit, in a temperature of around 100 degrees fahrenheit.

All in all a very enjoyable break from the Scottish weather, which was, life being what it is, very good during the time we were away, being fine grass growing weather. However that has now been dealt with so it's time to investigate some of my purchases.

" My thanks to all who organised the event." When's the next one?

(Editor's Note: The next North American get-together (our 4th) will be held in Newport, Rhode Island on the first weekend in June 1996. The affair will be hosted by NESQLUG (The New England Sinclair QL User Group). Watch for additional details in upcoming issues of IQLR.)

PRIZE WINNERS

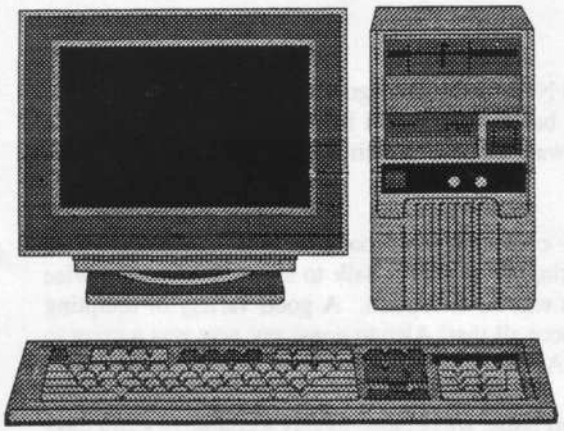
Newport, Rhode Island, USA - Bob Dyl

The following individuals were the proud recipients of the door prizes offered at the recent 3rd North American QL show. Special thanks go to the suppliers who made it all possible.

Tim Swenson	Masterpiece Graphics Card (when ready)	Miracle Systems
Jon Kaczor	Disk Collection	Mechanical Affinity
John J. Impellizzeri	Qubide Interface	Qubbesoft P/D
March R. Renick	QLerk Software	Wood & Wind Computing
Bronce Fitzgerald	Minerva MK I	TF Services
Doug La Verne	QL Computer	Mechanical Affinity
Giles Walker	DATAdesign Software	Progs
Al Boehm	QD 7 The PE Editor	Jochen Merz Software

Prizes winners names were drawn at random by individuals who happened to get to close to me at drawing time. The winner then came forward and picked a plastic egg from a box. Upon opening the egg the winner pulled out a small piece of paper and announced the prize he had won.

We had a lot of fun doing it this way and it seemed the fair way of doing things. Yes, you guessed it. We had one winner who drew his own name, but he shall remain nameless (March Renick).



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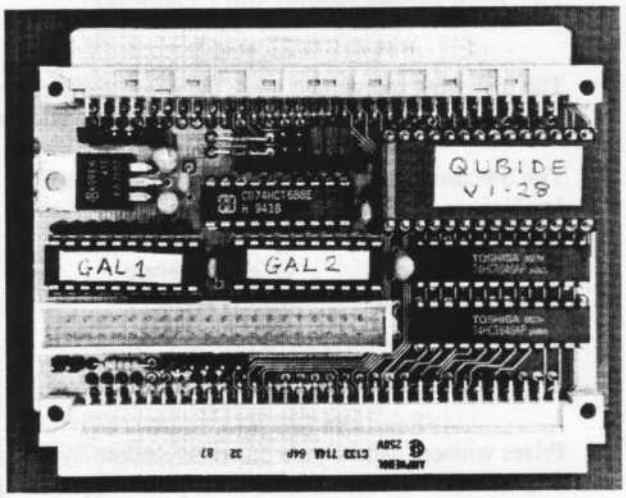

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It's TIME for the NEXT LEAP...

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The question: Do we need a next generation QL, or more accurately put, a new QDOS/SMSQ hardware platform?

I have been living with the current hardware almost half of my life, and having the fortune or misfortune to get to know other platforms as well, as far as I'm concerned, the answer is a resounding YES. In fact, I'm willing to commit as much time as it takes to make the new hardware a reality, and I'm happy to say I'm not the only one. As for my reasons - well, it is not simple to explain...

Let us examine the current state of affairs: The QL is almost 12 years old. In the computer business, this is almost talking geology, but for now, we will not use this as an argument that it needs changing - in fact the dominant computer technology used today is also of a comparable age, that being the PC. Enhancements through the years have obviously worked for it, so we may expect similar ones to work for the QL. In fact, despite the QL's age, many ideas behind the machine, or rather the operating system, have to this very day stayed fresh, and in some cases even avant-garde. For instance - would you believe me if I told you that QDOS (and now SMSQ) has been an 'object oriented' operating system for the past 6 years or so - at least in the sense of how the concept is perceived in the PC world? Probably not, but I will give you a clue - Things!

Considering that there is no industry behind the QDOS/SMSQ machines it is amazing how many excellent concepts have been added to the operating system during the years. Unfortunately, the problem remains the hardware - although the operating system is tremendously easily expanded, without easily accessible 'modern' hardware (i.e. the one you see on a neighbours, or even your own PC) many people loose interest in the machine. This is a vicious circle, with less users, there is even less chance of the machine progressing, both hardware and software wise.

As an up side, the need to use the resources optimally has resulted in a philosophy of using brains instead of brawn to get the needed performance. In this, the QL shares grounds with many workstations, or other pinnacle-of-technology computers, but has little common with the general PC world. The later has unfortunately progressed into the consumer frenzy driven upward curves, similar to automotive industry of the 50's - you are not encouraged to be clever - why be clever to make a program fast, when you can put a recommendation in the manual to use a faster CPU or more memory? Oh, yes - you can do that! Once you have the money, it's as simple to get a faster CPU or more memory as going downtown shopping. However, in the QL world there have long been NO faster CPUs or a simple means to add more memory. Hardware advances have been slow and sporadic, and because of the small number of people involved, expensive. Therefore, they have always (with only three exceptions that I know of, two of which failed, and one recuperated in the nick of time) concentrated on expanding the existing system, simply to save the previous investments in it.

Unfortunately, the original QL hardware is hopelessly outdated. With this, I am referring to the QL's main board and the expansion bus. Although many dramatic increases of capability have been made by adding hardware to the QL (like the Goldcard and Super Gold card from Miracle), During the years it has become increasingly difficult to provide further advances to the hardware, which are needed as solutions to old or new problems. At this point it has become almost impossible to provide levels of performance comparable to the rest of the computing world, for instance in graphics and sound, and in a lesser, but still sizeable extent in communications. Almost all of us know about the limitations of the QL such as bus speed of about 1.8 Mb/s at best, and unavailability of expansion memory space. Also, although theoretically possible, memory expansions are in practice impossible on any of the current QL accelerators (GC and SGC). Input/output addresses needed for most other expansions are available only on the SGC, in limited amounts.

The processing speed of PCs doubles every two years. The PC world has learned to use this to provide constant growth of the market. The reason is simple - almost everything on the PC has been adding by 'grafting' new things on it, rather than filling in empty 'sockets' someone has thought of before. This is true for everything from the very first PC CPU (the 8086 is an extension of the previous 8 bit 8085), over the various PC busses, right up to all the PC operating systems. Because adding anything clever at this point means years of work on new

software able to exploit it (case in point - it took all the time up to windows 95 to introduce QDOS style multitasking, in fact the Win95 taskbar looks suspiciously like PE buttons), the designers are reduced to using the crudest possible method to provide performance - upping the clock rate, and similar techniques which effectively have the same results. It's like finding ways to put more fuel into a car motor - the more you put in the faster it goes.

However, general trends show that with the current growth rate, something radical is going to have to happen if the rates are to keep constant, within the next 5 to 10 years. Simply put - there is going to be a fuel shortage. The reason for this being that the current technology advances which make the speed doubling possible every two years do not progress themselves at the same pace. We are witnessing today how even in the PC world things are SLOWLY coming back to brains instead of brawn - multitasking has been introduced, code is shared between programs, and computers are networked together, sharing resources. We are coming back to the QL philosophy of doing things - something we have had for the last 12 years. On the other hand, the PC 'dog eat dog' market has produced some remarkable hardware and new software ideas. WE CAN USE THIS SITUATION TO OUR ADVANTAGE!

To take the car analogy further - 12 years ago we were given a recipe for the electric car. At the time it could just break even with the existing gasoline technology. The general public rejected it because the electric car had odd looking headlights, and low quality tires. Meanwhile, to make it on the market, the gasoline people developed some incredible new high-voltage batteries, really good tires and some beautiful headlights. Interestingly enough, they also adopted some of the very procedures which made the QL die on the market, like post-festum fixes to the software (It might be argued that today no first release of any PC software package is really usable due to bugs in it).

Conclusion one: New hardware able to run QDOS/SMSQ has to use standard off-the-shelf PC hardware where possible, but without sacrificing performance to conform to the PC standards.

What does this mean in reality? In effect, this would mean that things like SIMM RAM, hard discs, CD ROM etc. (IDE, SCSI), floppies, PC cases and power supplies, keyboards, mice and monitors should be used, simply because their interfacing and operating philosophy is stable - they have become a standard which is unlikely to change very soon. This is important, because with the number of people involved with QDOS/SMSQ machines, it is unlikely that the development of the machine can follow the more hectic PC arenas, like the graphics card industry.

Where do we draw the line - which PC product we don't use? If you carefully examine the previous paragraph, you will see that neither of the pieces of hardware stated in it is actually truly PC specific. For instance, today all computers use SIMM RAM in one of it's versions, and the same goes for the rest in the list. Even the Apple computers have keyboards which are PC-like, and use IDE hard drives.

On the other hand, what can we use from the various PC expansion cards that are present on the market? Obviously we cannot use a PC motherboard - it's main idea is to carry the PC's CPU, which is of the wrong type. It carries the memory, but since we have a different CPU we have to do our own 'motherboard' or something similar. The PC motherboard also has an expansion bus where the other cards fit into.

To continue: Graphic cards - there are LOADS of those around. They are cheap, but new ones keep appearing at the rate of at least one each month. The problem here is that it's painfully difficult to get any documentation on the card hardware, so that a driver can be written for it. Also, at the rate new cards are introduced, by the time you have a working and stable driver, your card is out of production. Also, some of the cards have problems with their own ancestors, i.e. the need to be compatible with them. This makes the ways in which sometimes even basic and most frequently used functions are invoked extremely strange, and in some cases downright stupid. There is a book about VGA and SVGA programming available, it has about 800 pages. It pays off to read it just to see how things should NOT be done.

Input-output cards are the next on the list. They are cheap, and very simple, and also quite limited due to the fact that they have to be compatible with the BIOS in the PC, a piece of software in a ROM, which is located on the PC motherboard. Although the hardware is not directly compatible with QDOS/SMSQ it could be used with

special drivers. However, it would probably be simpler to make our own card, and be able to use the existing drivers. I would say that there is no reason to sacrifice performance due to PC compatibility, as it is not an issue here - we have to use our own drivers anyway. Furthermore, this is the part where we can use recycled bits and pieces from existing QDOS/SMSQ systems and save ourselves the need for new drivers. Floppies, serial and parallel ports are unlikely to change radically in the future.

Network cards go next - this is one area where there is a sort-of standardisation in the PC world, and this might be worth exploiting. However, the chips used on such cards are available, and relatively cheap, and data for them is easily obtainable. Furthermore, the network card circuitry is also simple, so it might be a good idea to build our own network cards. In the long run this might be better since we can tailor them to the system - the costs of developing the software drivers are in all probability going to be much higher than the costs of hardware development, so it pays off to make your own hardware if this makes the software simpler.

Sound cards and similar multimedia products - the new toys of the computing world. A simple answer - not yet. The multimedia is in complete disarray - there is no real standard (apart from some file formats), the products come with bundled software and the manufacturers do not give any hardware data. The safest bet would be to use a DSP (digital signal processor) and 16 bit audio, but that's a bridge to cross when we get there, especially as we may get more benefits from the same hardware, and not only sound. As for video, for now it is probably best to wait with any specific hardware.

This leaves us with only one completely practical board - a PC internal modem. However, this can also be bought as an external unit and although more expensive, when you add circuitry to interface to the internal one, you get to the same price.

Adding it all up, it seems that there are no outstanding reasons favouring the use of PC cards. This brings us to the question of the bus system used in our new computer. Why do we use a PC bus if we cannot realistically use the PC cards, with exception of a modem? The only PC bus which is more of an universal type is the PCI bus - since it's not completely PC specific, we might investigate using it in our own design. Unfortunately, here we have another problem - the risk of having the bus architecture change right beneath our feet, because of a revision. We might implement a set of functions of the bus just to find that the next version does not use them, or uses new ones - and even the few PCI cards we wanted to use we cannot use any more!

Consider a hypothetical situation - we have a PCI CPU board capable of running QDOS/SMSQ. Then, we would need some sort of input/output card for it, meaning new drivers with teething troubles similar to the QXL. If we want to stay with the old drivers, and have the added advantage of using hardware recycled from our old QL system, we have to do our own PCI board. If we have to do our own cards, then we might as well use our own bus, designed to our own specification. Realistically, the only advantage of PCI is that we would PROBABLY be able to use a PCI network card and save some time and money there. But we cannot do that unless we have done all the rest, i.e. CPU board, and all input-output, and then most users will not use a network card because they will not have their computer in a network. The PCI CPU board is not an asset - we could easily have made a board to work with any of the available busses, or with our own - the cost is the same. I invite everyone to prove me wrong.

To insist on being compatible if it means wasting a year to be so, while in the same year the very thing we wanted to be compatible with has changed so we can start all over again does not seem a good idea. It does not reflect the way QDOS/SMSQ works. QDOS is probably the only operating system running on a small computer which has been from the very start designed to be 'plug-and-play' - the new buzzword in the PC industry, and I think this capability should not be sacrificed to keep up with a market which operates on entirely different principles. Recent literature on PCI that I have been able to read discourages any thought that PCI style plug-and-play can be used on the QL, in fact the specs differ even amongst different platforms using PCI like Intel based and PowerPC based computers. It seems to me that 'plug and pray' would be a better fitting name, especially in the way Microsoft understands drivers - the people writing the next version of Windows might simply neglect writing a driver for your PCI hardware, or publishing proper documentation on how the hardware manufacturer can write a driver - the quickest way for Microsoft to ruin the manufacturer of the said hardware.

The philosophy of adding hardware to a QDOS machine is to have a driver come with the hardware. The driver has to present the hardware to QDOS using a set of predefined functions - thus QDOS communicates with the drivers, and so with the hardware over a 'software interface'. This means that applications never need to know any details of the hardware - the software interface makes it all look similar. In the case of QDOS/SMSQ the specifications on the software interface have been stable from the very start, and I have not seen a good reason to change them, possibly only extend them slightly. SMSQ seems to build onto the existing specs and even allows the system software to adjust itself for disparate hardware it's going to run on. This makes it easy to build new hardware without running into compatibility problems. On the other hand, specifications for some improvements in the way some drivers work have never actually been published - a notable case being level 2 and 3 directory driver specs. This is one problem which I will come back to later.

Now that there is an idea of which of-the-shelf components we want to use, there has to be a means to tie them all together. Without going back to the PC bus discussions, let us examine what general properties we need in our computer.

First of all, it goes without saying that we need a 32 bit architecture throughout. In the case of our machine this only relates to hardware - since QDOS and SMSQ run on 68000 series CPUs they have been designed with 32 bits in mind from the very start - because for the software there were 32 bits from the very start.

Do we make allowances for 64 bit architecture? The answer is certainly NO. The only useful data type which is larger than 32 bits is a extended precision floating point number. A typical CPU executes one floating point instruction every 400 or more integer instructions, which is also the reason why floating point coprocessors (either separate or integrated on a CPU) do not evolve with the same speed ordinary CPUs do. The only really beneficial thing about a 64 bit bus is that the CPU can fetch more instructions at once, or if the instructions are not of a fixed length, achieve better instruction fetch efficiency. Fortunately, that problem is solved much better by efficient on-chip caches than by 64 bit busses, at a much lower cost. This is the reason why fully 64 bit CPUs have not appeared yet, nor is it likely they ever will.

Another concern is how much memory we can address. Most 32 bit CPUs have also 32 address bits, resulting in a maximum of 4 Gb addressable memory. This usually has to include requirements of the input-output devices, but that is a diminutive percentage. Will we ever need 4 Gb of memory? Extremely unlikely - it took us 10 years to get from 1Mb to 8Mb, an 8-fold increase. Taking 10 years as the probable lifetime of the new machine, we take the same 8-fold increase from the current situation, and say that we need at least 64 Mb. Further in the text I will try to argue that even this is unlikely to ever be used up. Another RAM related fact - a CPU spends 99% of it's time accessing RAM for various reasons. This points to a possible solution to the bus problem - we could make the bus use standard DRAM signals and timing, adding another good trait - the need to address standard RAM is common to all CPUs used in personal computers, making the bus practically universal - in fact it would then be easy to make bridges from the said bus to other buses, including PCI and the like.

Conclusion two: We need a 32 bit data path architecture, with at least 64 Mb address range, able to interface efficiently with ordinary DRAM. If a particular CPU type needs higher speeds, they have to be obtained by using a second-level cache. Because of conclusion one, it would be a good idea to make it possible to construct bus adapters to adapt whichever bus is used to another standard, like one of the PC busses.

Ideally, it would be best if the RAM was as 'close' as possible to the CPU, to account to the interfacing peculiarity, but if we make everything in a system mimic RAM, we are not far off. 32 bit 70ns DRAM which has already been superseded by 60ns models has a maximum throughput of 28 Mb/s without using any special techniques (like burst access), which is some 15 times faster than the QL's 8 bit bus. With such speed it is unlikely that a bus system developed from a DRAM-like interface will ever represent a bottleneck for the largest majority of peripherals. That speed is even enough for uncompressed full-standard (broadcast PAL) digital video, while still leaving a fair amount of headroom. DRAM (and thus a DRAM-like bus) also has higher speed modes of data access (usually called page mode access).

Which CPU do we use at a starter level? It seems to me that an ordinary 68020, such as the one used on the SGC is a perfectly good start. It has a good turn of speed, and with a fully 32 bit interface to some graphics hardware,

and a hard disc, it would probably grow wings. Compared to the current situation in the PC world, a 68020 might look pathetic - but that situation does not apply to QDOS/SMSQ machines. Compatibility can be a blessing, but if you go too far, it's a noose around your throat. If a 32 k program does the same thing as a 320 k program, the 32k one will always be more efficient, and more robust. The smaller one will also always load faster which will make the same hard disc appear faster. The probability of spurious errors in the smaller program is lesser, simply because there are less bits in the program that can go corrupt. Compare the size of SMSQ/E to say, Windows 3.1 kernel and one driver for each piece of hardware. Now do you understand why a 68020 seems fast?

You will probably notice that neither conclusion one nor two imply any restriction to which CPU has to be used - any of them interface to the same peripherals and RAM, and have almost all have a version with a 32 bit external data path. The reason for this will, I hope, become clear later in the text.

Common sense dictates that however we design our new computer, it has to be to a reasonable degree future-proof. Having QDOS/SMSQ as the operating system takes a lot of that load off our shoulders, but the real problem in having a future-proof machine lies in the hardware.

You don't have to be a genius to figure out that more and more processing power will be needed in the future. Unfortunately, as I have already stated, we cannot expect clock rates of CPUs to increase much further - the reason being laws of nature, and those are extremely difficult to overcome, to put it mildly. In order to be faster, the manufacturers need to simultaneously reduce voltages and make the chips physically smaller. Both have a law-of-nature limit, and even if materials were used that are better than silicon (like Gallium Arsenide, if the technology existed) give us less than 5.5 years until technological resources for speed advances are exhausted, using the speed doubling every two years as a template. Unfortunately, faster semiconductors are, looking at the current situation, somewhat further away than that, and completely different approaches like optical computers or similar are even further, possibly by decades. Possible advances which would extend the capability of the existing technology include practical high temperature superconductors to enable efficient cooling, but such do not exist at all yet - the ones that do operate at temperatures where all semiconductors known to man don't work any more. Obviously, technology alone is not the answer - enter a form of multiprocessing known as superscalar computing. The idea behind it is to try to execute several consecutive instructions at once, which is possible if they don't affect each other's data. Some CPUs using this approach are the Intel P5, Motorola 68060, Supersparc, MIPS R4000. Each has 2 execution units, and can execute two integer instructions at a time. In some cases other instructions can be executed concurrently, like jumps and floating point instructions, but those do not present a significant percentage. Future architectures are likely to integrate more execution units (3 or 4) to enable more instructions to execute concurrently. Unfortunately, once you go over 3 execution units, they are seldom used concurrently, simply because there are no consecutive instructions that fit the premise of not affecting each other's data. Pegging the limit of the number of execution units to 4 gets us a speed increase which translates to about 15 more months until resources are exhausted. Looking at this data it might occur to the average user that there isn't much that can be done about it. Well, a bit of lateral thinking could help...

We can optimise what we do, and use intelligent peripheral units to relieve the CPU of some of it's work. Input/output tasks are the most logical candidate, in particular graphics and communications. Using the best techniques, providing the rest of the system is fairly optimal, we gain a somewhat overestimated 2x increase of effective speed, meaning 2 years until we exhaust this resource. This is the simplest, and easiest way to introduce a form of multiprocessing. In some applications this technique can offer more performance improvements, but on a single-user machine the applications are not enough input-output intensive to expect more than the said gains. Because all hardware intended to perform IO functions on QDOS/SMSQ machines is accessed through a software interface, it has to conform only to the broadest hardware requirements, and does not have to be itself compatible to any software. This makes the intelligent IO almost as easy to implement as any other.

Finally, we can exploit the concept of multiprocessing further, by having multiple CPUs instead of one superscalar CPU - because obviously, looking at consecutive instructions is not enough. The concept of multiprocessing is extremely broad, and almost anything can fit into it. The QDOS/SMSQ world has lived with multitasking for a long time. Having different tasks run on different CPUs is not that far removed from multitasking as we know it, as long as there are enough tasks to keep all the CPUs busy. Here is where the true power of QDOS/SMSQ lies, and in my opinion it would be foolish not to exploit it.

It's TIME for the NEXT LEAP - (cont'd)

Although we are progressing slowly, the rest of popular computing has started to catch up only in the last years. We have a lot of time until they overtake us, and by then we might be happily computing on multiprocessing machines. For us the next leap is easier. Multiprocessing as a principle is still a big unknown, and as such we can set no limits as to it's potential. Having jobs work on several CPUs is only a start. This is the reason why I think it unlikely that a SMSQ machine will ever use 64 Mb of RAM - it is more likely we will have more CPUs working concurrently with all the RAM they need for them selves before we reach the 64 Mb limit on a single CPU.

How does this relate to the problem at hand, namely our new machine? Well:

Conclusion three: Support multiple bus masters, so that more than one CPU or other master device can take control of the bus for any purpose. This is as far as we can go, and this measure is designed primarily with intelligent IO in mind. It can also support a limited amount of CPU boards (as opposed to intelligent IO boards).

An actual future multiprocessing machine will in all probability be very different in it's design, so it does not pay off to guess at what it will be, or provide specific hardware resources (prejudicing what can or cannot be done). It is better to simply provide a general resource. The ability to use multiple bus masters makes it possible to transfer data from and to peripherals without main CPU intervention - other CPUs dedicated to IO can do the task. IO dedicated CPUs do not have to be very powerful or expensive - for instance, a single 68008 can easily handle two fast serial ports, a parallel port, a keyboard and a mouse, in parallel with the tasks of the main CPU. Upping the clock a little or using a 68000 makes it possible to do background operations on a floppy. All that with only a minimal degradation on the main CPU performance, about 6 to 8%. Things like port buffering, or even on-line compression of data are easily added by additional programming for the IO CPU - the program can simply be uploaded in the IO CPU's memory. For an idea on how this can work you need to look no further than the new superHermes.

The reason why the actual CPUs being used are not specified should now be apparent - this will depend on what they are used for. Once multimastering is involved, we might use different CPUs to provide intelligent peripheral interfacing, emulation of other computers, or multiprocessing, either with several identical or several different CPUs. In effect, we use the CPU that fits the particular job. We can even use more than one CPU on a single board, if it suits the purpose.

At this point you might be wondering how can a machine with so much new potential be made to use as many parts from your old system as possible. First of all, recycling old parts has to be handled correctly - we do not use parts which are counter-productive for the new design. For instance, if you look at a Goldcard, you will notice that several chips on it are socketed. Since we cannot use the Goldcard as such, we might consider using the socketed chips from it. Looking closely, you will find that the 68HC000 CPU, the ROM chip, the RAM chips, the floppy controller and the real time clock (RTC) chip are socketed. The RAM can certainly be used, and the floppy controller. The RTC is also reusable - time as we measure it will not change in the future, so no need to re-invent the wheel. The EPROM is easily recyclable - we will certainly need at least one in the system. With the GC retailing for 100 Pounds, only recycling the RAM saves 50 Pounds, at least. Similar things are possible with the SGC, and the same applies for most other boards with socketed VLSI, RAM or reprogrammable chips. An added advantage - we are using peripheral chips which use existing driver software, so we basically only need to adjust the address at which they are found. Therefore:

Conclusion four: Wherever possible recycle components from older parts of the system, but do not compromise on the previous three conclusions to aid recycling.

In some cases, the practical applications of conclusion four might be as simple as providing sockets for GC/SGC RAM along with SIMM sockets.

Once we have all this set-up, the question is in what form we put it all together, speaking from the mechanical standpoint. Obviously, we have settled for a PC style case, and a PC power supply. Both of those are relatively easy to accommodate in the design.

Simply speaking about a bus means that there is going to be one, and some slots on it to plug cards into them. The system is therefore modular, but even here there are several possibilities - do we use a motherboard with expansion slots, or a simple backplane with slots to carry boards. If we use a motherboard, which parts of the system do we integrate onto such a motherboard, and which do we expect to have on plug-in boards? Do we have memory integrated on the same board with the CPU, or as a separate module? Personally, I would go with a backplane which carries a CPU board or boards, which have on them RAM local to the said CPU, and additional RAM expansion sockets. There would be an additional input-output board capable of interfacing to standard devices, which are unlikely to change much - like floppies, serial ports, parallel ports, a keyboard and a mouse. Ideally, this board should have it's own CPU, which by no means has to be a 32 bit one - it simply has to provide enough power for simple operations with the said peripherals. The CPU can also be an optional component, possibly with some RAM and ROM on the side. Certainly there would have to be a graphics card of some sort - here the options are plentiful, but one is almost essential - 256 colours, resolution comparable with what can be obtained using a QXL. However, this is only my opinion - so any comment is welcome. For now, we can state:

Conclusion five: The hardware should be modular from the very start to allow for easy expansion. We do not want to face the same problems as when expanding the original QL.

Now that the underlying ideas of a new hardware platform are outlined, we come to the next big problem - the software.

Realistically speaking, it would not be a big problem to use only a slightly modified SMSQ/E for the Goldcard to bring the new hardware to life - but the benefits of such a system, while being a good start, are simply not enough. OK, the machine would be much faster at some tasks, and you could easily add more memory - but what about all the added potential? Simply put - we need people to write new software that extends the machine's capability. This means anything from new drivers, to new applications. The hardware can be as good as it likes, but without the drivers it will never work. Then, having a uniform way of accessing the new hardware inevitably creates new application potentials - consider, for instance, how many new applications you can think of on SMSQ if the hardware supported 256 colours and had the proper drivers for it?

The QDOS/SMSQ environment is such that programming for it was never difficult. However, more recent advancements have changed this situation, because of one simple reason - lack of adequate documentation.

Did you know that the EE (Extended environment - i.e. what is now the /E part of SMSQ/E) supports 16 bit colour, meaning up to 65536 colours? I challenge the well versed pointer environment programmers to find out where this fact is documented. To continue further - do you know how to write a driver for a pointing device, or a network driver? What functions a level 2 or 3 driver has to implement? Why are filenames limited to 36 characters?

With all this a single fact should be remembered - the users of QDOS/SMSQ are a lot different than the users of say, Windows. People who have stayed faithful to QDOS/SMSQ have certainly not done so because of the flashiness of applications programs. We would be perfectly safe in maintaining that the QDOS/SMSQ community has amongst it's users an inordinately high percentage of people who at least have a fair idea about programming - we might also say that almost all of us users had to recourse to some programming, if nothing else to write a boot program. It's certainly counter-productive to reduce the available programmer pool by not having proper documentation.

Looking at the public domain software scene, it's clear that there are programmers willing to push walls in their quest for better software. The biggest problem is when this results in something new, something which has not been seen before. In a way, the documentation should not only be there as a reference for the current state of the operating system, but also have some guidelines to how the OS has come to such a state, and how it should be expanded, so that people don't end up pushing the same wall from different directions, so to say.

Another thing I found lacking in my own roaming through the available documentation is no mention of underlying ideas and a lack of examples. For instance, it took me three days to find out how to write a simple serial driver, but once I got the idea, I realised I had never seen the matter of drivers presented in a more concise

and elegant way - the code was finished and working in a matter of hours. This made the initial disappointment with the documentation even worse. One area where this is very damaging is with concepts which are new and fairly universal - like Things. The problem here is in part psychological - if you have something which can be used for almost anything, it will end up being used for nothing if you don't offer several examples for it's use.

This is because not everyone has the power to envision how a concept can be used to get real world results. I can offer you an example - try to imagine yourself in ancient Rome, where they do maths using Roman numerals. Now try introducing the idea of Arabic numerals (easy to read and calculate with) to a Roman numeral world, without examples showing why they are better.

Conclusion six: We urgently need to fill some serious gaps in the available reference documentation on QDOS/SMSQ(/E). Tings that need to be done are showing the basic ideas used to implement it's capability, updating documentation to the current state of the OS, adding some loose guidelines for the future-all with examples.

Not having this issue addressed will inevitably lead to 'it works on the JS ROM' syndrome, i.e. backward compatibility which serves no purpose. This is a result of programmers having to use partial disassembles to see how things work.

Another analogy:
Idea: get from A to B.
Program: use a car to get from A to B.

Conclusions of a programmer that disassembled the program: To get from A to B we need a car. Therefore include car in all future programs that need to get from somewhere to somewhere else.

Conclusions of a programmer that knows the idea: Look what is available to get us from A to B. Use it. This will work even if Star Trek matter transporters are found to be available, not only cars.

Having to 'Use a JS ROM' because of failed assumptions or incomplete documentation is in my opinion utterly stupid (I'm sorry if someone finds this insulting). If that's the way things should work, cars would today be compatible with being towed around by cattle. The point of all this: A QDOS/SMSQ machine is NOT an IBM PC or compatible, so should not fall pray to the same problems.

I may be immodest, but I think that with every release of an OS there should be a corresponding release of the key documentation, at least in the form of an addendum to the existing documentation. Ideally, I would like a reference manual to have come with every machine - say on a CD. It is true that writing such reference manuals does not generate much profit, but without them no-one knows how to use a product to get all it's advantages - so then why buy the product? No products bought - no profit. It's as simple as that.

Another problem which is closely related is that there are people who can write wonderful system software. Then, there are people who can write wonderful manuals. It seems to be a natural law that those two groups seldom overlap.

At one of the recent meetings a friend of mine asked Jochen Merz where he got the data on how to implement something in one of his programs - and the answer was 'I phoned up Tony Tebby'. Well, not everyone can phone up Tony Tebby, he's not that easy to reach, and by all rights he should not be, otherwise he'd go mad trying to answer everyone's requests. Obviously this is not the way to do things. There must be people around who understand enough of QDOS/SMSQ at least to ask the proper questions to get to the concepts behind ways QDOS/SMSQ does things, and are also able to write down this knowledge in a form understandable to a wide audience.

Once all the previous conclusions are satisfied, there is a whole lot we can do with our new machine. But, as I said, there are many ways something can be done, and all of them are not equally good, or with equal forethought about the future, the sore point here being the extensions to the OS. QDOS/SMSQ is extremely extendible, so there are many possibilities. To name only a few:

It's TIME for the NEXT LEAP - (cont'd)

We could have a better looking user interface. The Pointer Environment (PE) is a part of QDOS/SMSQ system software - although it may look restricting to some programmers (documentation problem again, in my opinion), it offers a much larger benefit of offering a uniform way of doing things amongst different programs. Although there is no 'desktop' or similar construct, the Hotkey system enables the user to tailored the system, to the specific ways the user does things with it. The philosophy is excellent (Microsoft is just catching up with it with Windows 95) but one could still build onto the existing foundations. For instance, we could add the ability to have icons in buttons (I would not be surprised if that's already in there - DOCUMENTATION!!!) or multiple button frames called up or disposed off by buttons. One thing you might be surprised at - I think the number of colours for the user interface (that being the windows borders, the menus, the buttons and the sprites) is perfectly adequate - 4 are enough, but I'd like to choose WHICH four, if more are available. I find it best if the application handles extra colour capability, if it needs it. As far as colour and applications go, I'm almost afraid to think what would happen if the QL had 256 colour video - using Carlos Delhez' UNGIF might give you some ideas!

But how about other system software? Say drivers for CD ROM? A time ago I submitted a rather long text on something I called 'Meta-drivers' to be circulated on the BBS network. The concept behind it is to enable easy adding of new devices which have some similarity with existing ones, or common ancestry, but have never been used on QDOS/SMSQ before. It also solves other device-related problems, amongst others, remote device access using networking. Other people thought about more ideas, for instance virtual windows, floating point coprocessor support and hardware memory protection. I'm sure there are more around.

Without trying to form a committee (the very idea sounds absurd applied to the QL community) we would need something (someone?) to throw the ideas at. One obvious choice is Tony Tebby, but as I said, he is only one man and has only so much time, even if he was willing to assume such a role.

Conclusion seven: We need a way to transfer ideas as to the growth of the new platform. Any suggestions on solving this problem are highly welcome.

Developing a new computing platform intended to replace an old one should not be a one-sided decision, or a one-sided process. Ultimately, it will be the users who will decide if they like a new product, but I think it is essential that as much of the QL community play a role in the making of a new machine as possible. With all that was said, it should be obvious that this project is certainly not a short-term one, but rather an long-term, on-going one.

Conclusion eight:

YOUR help is needed in making this a reality.

The idea of a new QDOS/SMSQ platform has struck a resounding bell at QUBBESoft PD, so the first step towards making a new platform has in a way already been made.

Certainly, the costs of development of a new computer are high, so we would like co-operation with other QL traders to produce parts of the system. It could be argued that there can never be enough money for research and development, but we would rather have feedback from the current QL users!

Do you think all this is a good idea? Do you have your own ideas, suggestions or comments? We would like to hear from you! We need help in preparing the relevant reference documentation, so that other people can develop their own hardware and software for the new machine.

But that's not all - the real commodity is information - there is no need to re-invent the wheel, and it would be absurd and pretentious to think that only our solutions are the good ones. There are many concepts we can safely borrow from other computers, and we need any suggestions you can think of, or even better, documentation on the said concepts, or even documentation in form of standards and specifications. Even hardware documentation is highly welcome, as I said, it's often difficult to obtain.

It is our intention to have this project a matter of discussion for a limited time, the deadline we're thinking of is

It's TIME for the NEXT LEAP - (cont'd)

by December 1st or thereabouts. We intend to use any information we can come up with to see whether such a project is feasible and if it is, what the actual specs will be. The more feedback we get from you, the more data we will have, and we hope that if you, the users and traders find this idea appealing, this data will help us all build the machine we want.

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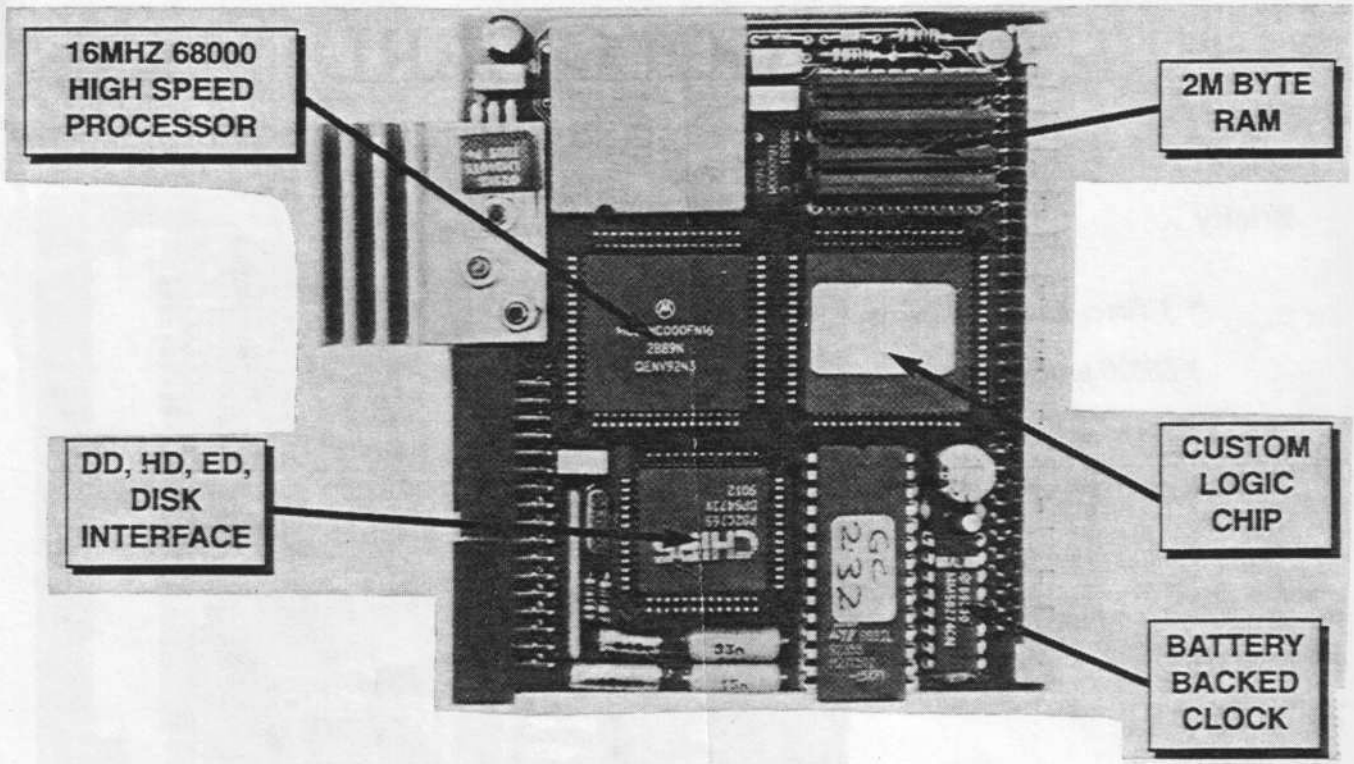

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This is the expansion that has been revolutionising the QL. It is very easy to fit , it simply plugs into the expansion port at the left hand of the QL, and once fitted it will instantly increase the execution speed of the QL by about 4 times due to the presence of a 16MHz 68000 on board. There is 2M of fast 16 bit RAM of which QDOS sees a contiguous 1920K. The remainder is used for shadowing the QL's ROM and display memory and for the GOLD CARD's own code.

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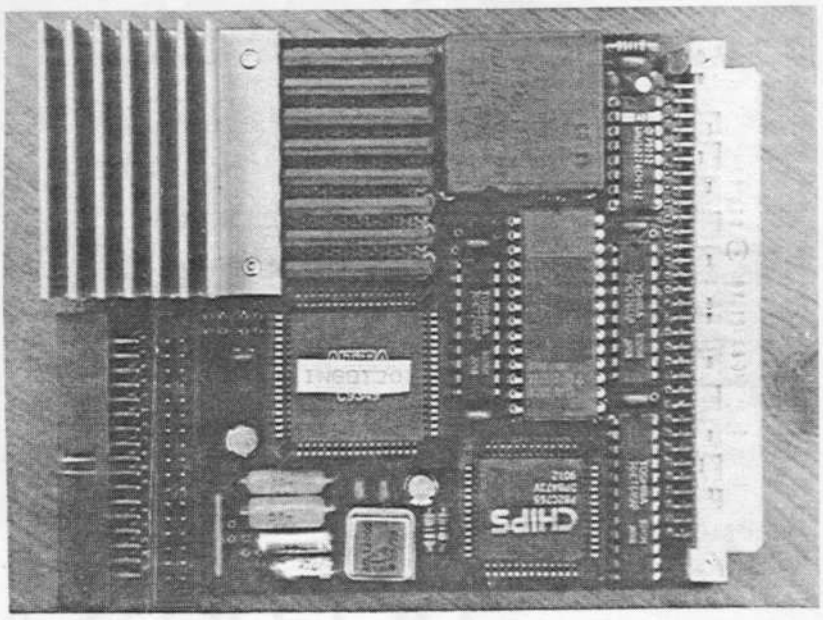

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